



# Full wwPDB X-ray Structure Validation Report ⓘ

Apr 17, 2024 – 12:40 PM EDT

PDB ID : 8UKR  
Title : RNA polymerase II elongation complex with Fapy-dG lesion soaking with ATP before chemistry  
Authors : Hou, P.; Oh, J.; Wang, D.  
Deposited on : 2023-10-15  
Resolution : 3.78 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtrriage (Phenix) : 1.13  
EDS : 2.36.1  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36.1

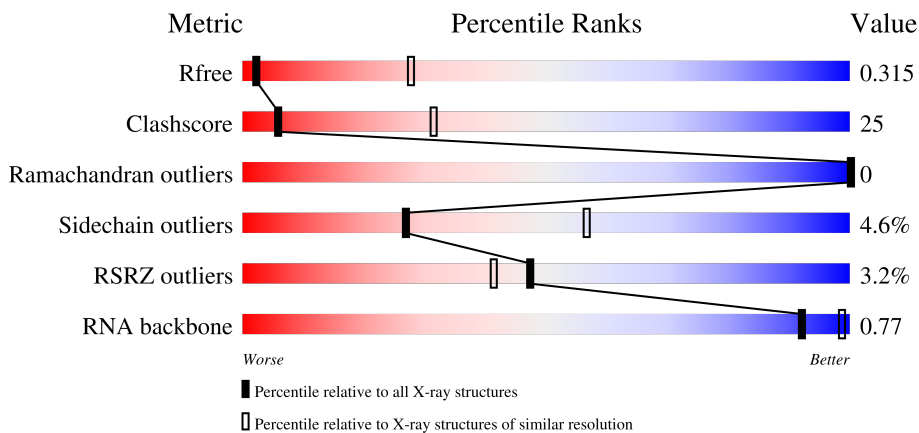
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.78 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	1038 (3.96-3.60)
Clashscore	141614	1100 (3.96-3.60)
Ramachandran outliers	138981	1062 (3.96-3.60)
Sidechain outliers	138945	1058 (3.96-3.60)
RSRZ outliers	127900	1009 (3.98-3.58)
RNA backbone	3102	1035 (4.52-3.00)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	R	9	 33% 33% 33%
2	T	29	 10% 62% 10% 17%
3	N	18	 6% 61% 6% 28%
4	A	1733	 3% 40% 38% 20%

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Mol	Chain	Length	Quality of chain
5	B	1224	<p>2% 46% 44% 8%</p>
6	C	318	<p>2% 45% 37% 16%</p>
7	E	215	<p>7% 47% 47% 1%</p>
8	F	155	<p>1% 28% 26% 45%</p>
9	H	146	<p>6% 42% 45% 9%</p>
10	I	122	<p>5% 40% 51% 6% 1%</p>
11	J	70	<p>43% 43% 7% 7%</p>
12	K	120	<p>1% 50% 42% 5%</p>
13	L	70	<p>9% 24% 29% 6% 39%</p>

## 2 Entry composition [i](#)

There are 16 unique types of molecules in this entry. The entry contains 28985 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a RNA chain called RNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
1	R	9	194	88	40	58	8	0	0	0

- Molecule 2 is a DNA chain called tsDNA with Fapy-dG lesion.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
2	T	24	481	230	76	151	24	0	0	0

- Molecule 3 is a DNA chain called ntsDNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
3	N	13	275	128	61	73	13	0	0	0

- Molecule 4 is a protein called DNA-directed RNA polymerase II subunit RPB1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	A	1384	10828	6831	1896	2041	60	0	0	0

- Molecule 5 is a protein called DNA-directed RNA polymerase II subunit RPB2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
5	B	1123	8859	5607	1552	1647	53	0	0	0

- Molecule 6 is a protein called DNA-directed RNA polymerase II subunit RPB3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
6	C	267	2101	1320	349	419	13	0	0	0

- Molecule 7 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
7	E	212	1724	1094	305	314	11	0	0	0

- Molecule 8 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
8	F	86	684	437	115	129	3	0	0	0

- Molecule 9 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
9	H	133	1064	670	179	211	4	0	0	0

- Molecule 10 is a protein called DNA-directed RNA polymerase II subunit RPB9.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
10	I	118	952	585	173	184	10	0	0	0

- Molecule 11 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
11	J	65	532	339	93	94	6	0	0	0

- Molecule 12 is a protein called DNA-directed RNA polymerase II subunit RPB11.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
12	K	114	919	590	156	171	2	0	0	0

- Molecule 13 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
13	L	43	332	205	64	59	4	0	0	0

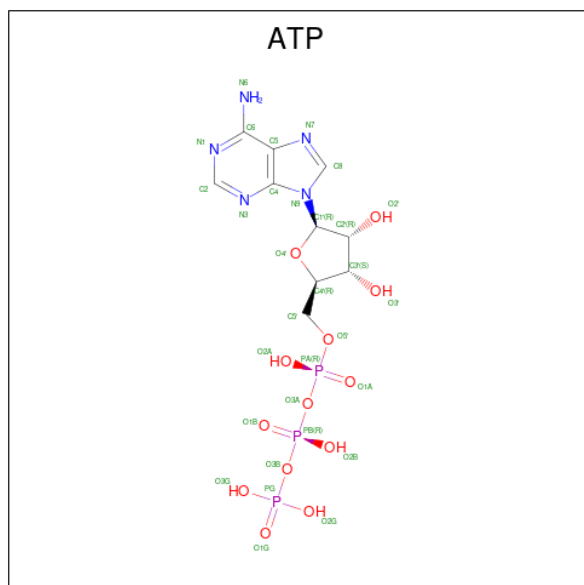
- Molecule 14 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
14	A	2	Total	Zn	0	0
			2	2		
14	B	1	Total	Zn	0	0
			1	1		
14	C	1	Total	Zn	0	0
			1	1		
14	I	2	Total	Zn	0	0
			2	2		
14	J	1	Total	Zn	0	0
			1	1		
14	L	1	Total	Zn	0	0
			1	1		

- Molecule 15 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
15	A	1	Total	Mg	0	0
			1	1		

- Molecule 16 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula: C<sub>10</sub>H<sub>16</sub>N<sub>5</sub>O<sub>13</sub>P<sub>3</sub>) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
16	B	1	Total	C	N	O	P	0	0
			31	10	5	13	3		

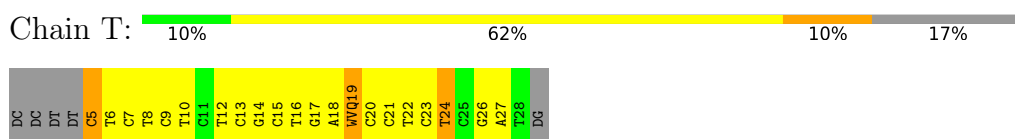
### 3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

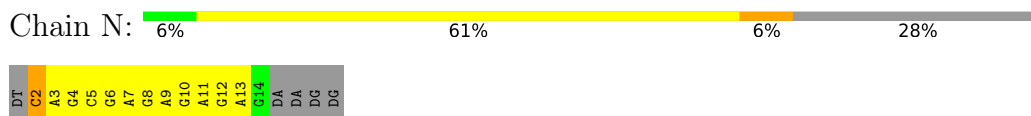
- Molecule 1: RNA



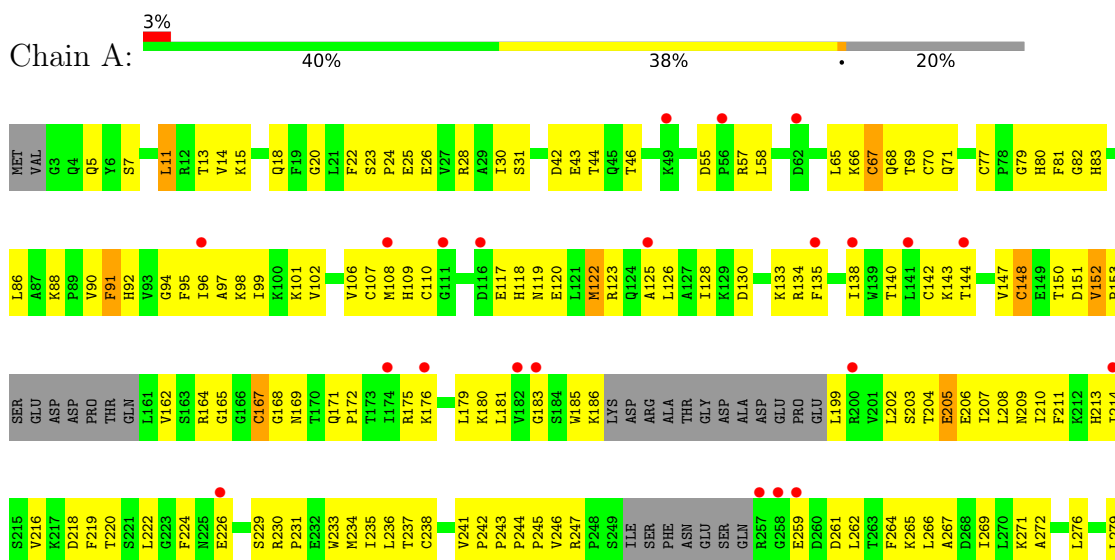
- Molecule 2: tsDNA with Fapy-dG lesion



- Molecule 3: ntsDNA

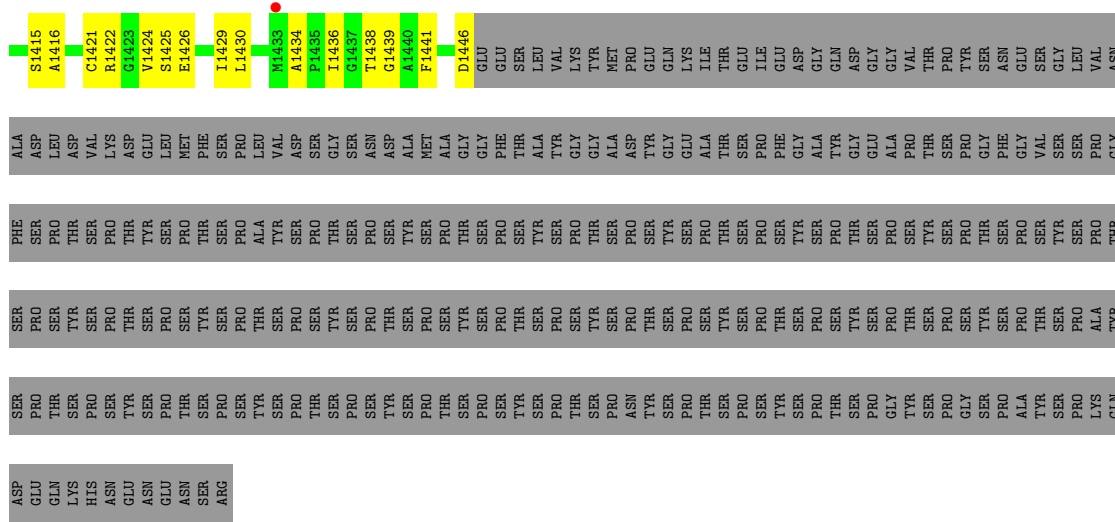


- Molecule 4: DNA-directed RNA polymerase II subunit RPB1

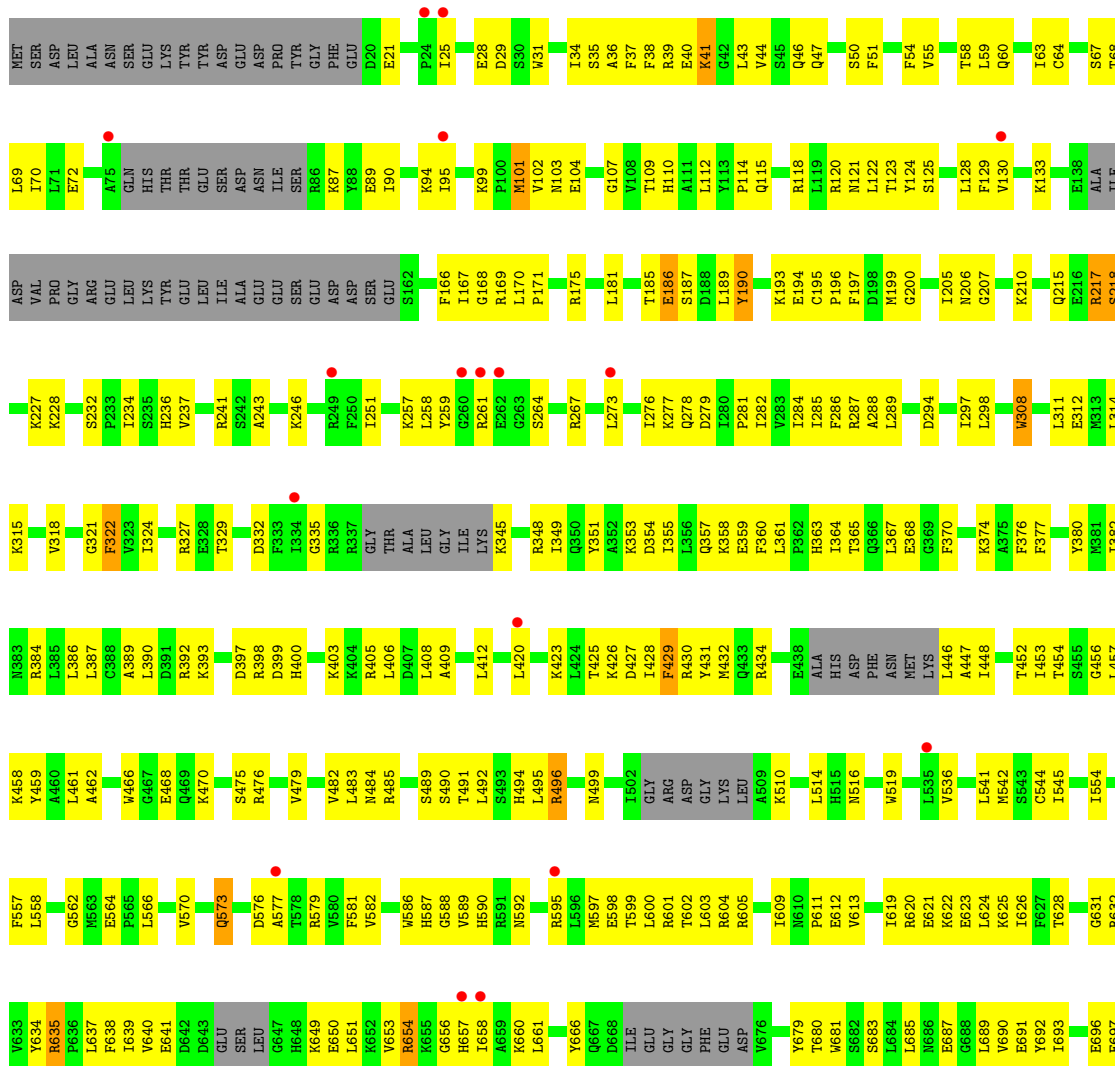




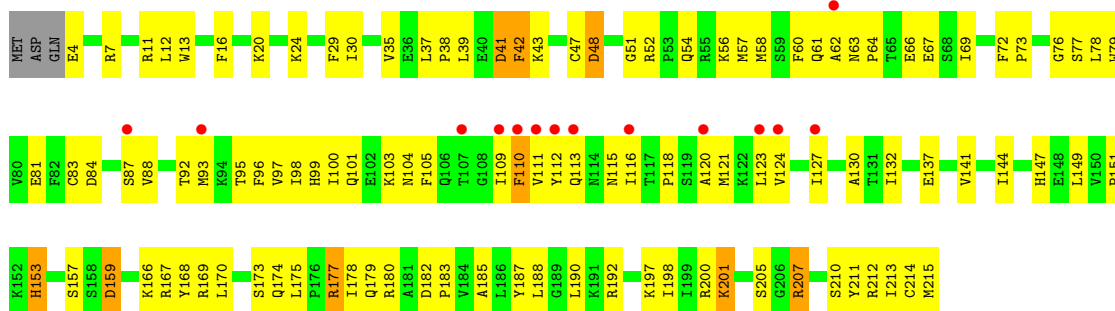




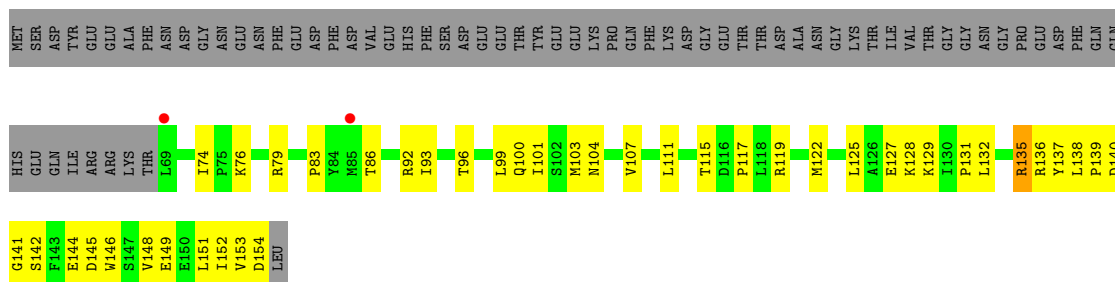
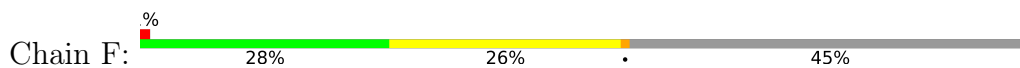
• Molecule 5: DNA-directed RNA polymerase II subunit RPB2



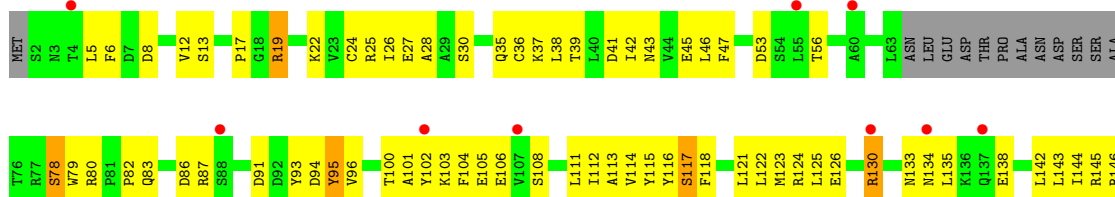




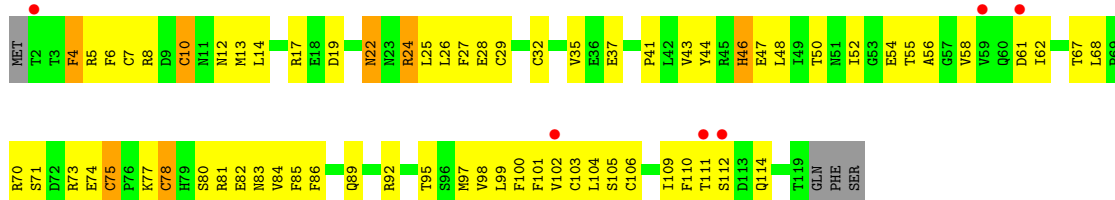
• Molecule 8: DNA-directed RNA polymerases I, II, and III subunit RPABC2



• Molecule 9: DNA-directed RNA polymerases I, II, and III subunit RPABC3

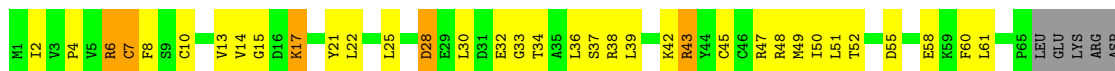


• Molecule 10: DNA-directed RNA polymerase II subunit RPB9

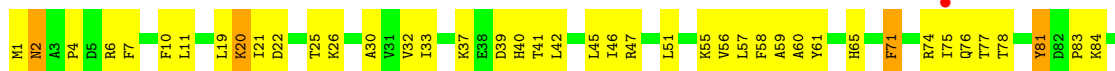


• Molecule 11: DNA-directed RNA polymerases I, II, and III subunit RPABC5

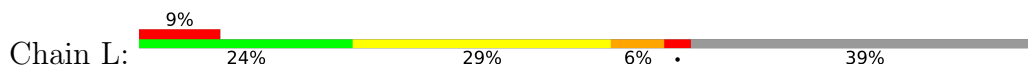




• Molecule 12: DNA-directed RNA polymerase II subunit RPB11



• Molecule 13: DNA-directed RNA polymerases I, II, and III subunit RPABC4



## 4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	159.62Å 222.63Å 190.70Å 90.00° 97.69° 90.00°	Depositor
Resolution (Å)	47.96 – 3.78 47.96 – 3.78	Depositor EDS
% Data completeness (in resolution range)	97.6 (47.96-3.78) 97.6 (47.96-3.78)	Depositor EDS
$R_{merge}$	0.57	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.18 (at 3.77Å)	Xtrriage
Refinement program	PHENIX (1.20.1_4487: ???)	Depositor
R, $R_{free}$	0.261 , 0.310 0.264 , 0.315	Depositor DCC
$R_{free}$ test set	1996 reflections (3.10%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	112.7	Xtrriage
Anisotropy	0.584	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.27 , 109.3	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.39$ , $\langle L^2 \rangle = 0.22$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.90	EDS
Total number of atoms	28985	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	148.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.62% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 5 Model quality i

### 5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: ATP, ZN, MG, WVQ

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	R	0.41	0/218	1.10	0/339
2	T	0.70	0/507	1.09	2/775 (0.3%)
3	N	0.75	0/311	0.94	1/479 (0.2%)
4	A	0.31	0/11020	0.58	1/14907 (0.0%)
5	B	0.31	0/9030	0.57	0/12186
6	C	0.31	0/2139	0.56	0/2899
7	E	0.33	0/1759	0.61	1/2367 (0.0%)
8	F	0.29	0/696	0.56	0/943
9	H	0.31	0/1082	0.64	0/1466
10	I	0.35	0/970	0.65	0/1308
11	J	0.32	0/541	0.59	0/727
12	K	0.33	0/937	0.62	0/1265
13	L	0.82	2/333 (0.6%)	1.19	4/442 (0.9%)
All	All	0.34	2/29543 (0.0%)	0.62	9/40103 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
13	L	0	2

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
13	L	40	LEU	CG-CD2	-7.21	1.25	1.51
13	L	39	SER	C-O	-5.50	1.12	1.23

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
13	L	40	LEU	CB-CG-CD1	13.94	134.70	111.00
13	L	40	LEU	CB-CG-CD2	-7.81	97.72	111.00
3	N	2	DC	O4'-C4'-C3'	-7.47	101.51	104.50
13	L	39	SER	CB-CA-C	6.52	122.48	110.10
7	E	48	ASP	CB-CG-OD1	6.43	124.08	118.30
2	T	5	DC	O4'-C1'-N1	-5.76	103.97	108.00
13	L	39	SER	CA-C-O	-5.22	109.13	120.10
2	T	24	DT	N3-C4-O4	5.22	123.03	119.90
4	A	152	VAL	CG1-CB-CG2	-5.04	102.84	110.90

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
13	L	39	SER	Peptide
13	L	40	LEU	Peptide

## 5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	R	194	0	98	7	0
2	T	481	0	262	27	0
3	N	275	0	144	20	0
4	A	10828	0	10875	594	0
5	B	8859	0	8816	462	0
6	C	2101	0	2056	112	0
7	E	1724	0	1751	92	0
8	F	684	0	692	36	0
9	H	1064	0	1029	68	0
10	I	952	0	897	68	0
11	J	532	0	542	31	0
12	K	919	0	929	57	0
13	L	332	0	347	40	1
14	A	2	0	0	0	0
14	B	1	0	0	0	0
14	C	1	0	0	0	0
14	I	2	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
14	J	1	0	0	0	0
14	L	1	0	0	0	0
15	A	1	0	0	0	0
16	B	31	0	12	1	0
All	All	28985	0	28450	1441	1

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 25.

All (1441) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:70:CYS:SG	4:A:80:HIS:CE1	2.58	0.96
4:A:117:GLU:HG2	4:A:122:MET:HE1	1.49	0.94
4:A:613:ILE:HG21	9:H:102:TYR:HB3	1.49	0.93
4:A:881:GLN:HB2	4:A:956:LEU:HD12	1.52	0.92
5:B:892:LYS:NZ	5:B:904:ARG:O	2.07	0.88
4:A:1325:THR:HA	7:E:147:HIS:HA	1.57	0.87
5:B:621:GLU:HG3	5:B:623:GLU:HG3	1.55	0.86
4:A:326:ARG:HG3	4:A:1406:VAL:HG11	1.55	0.85
7:E:69:ILE:HG13	7:E:73:PRO:HA	1.60	0.84
4:A:1139:GLU:HG3	4:A:1282:VAL:HG22	1.60	0.84
7:E:78:LEU:HD11	7:E:109:ILE:HG12	1.61	0.82
5:B:129:PHE:HA	5:B:166:PHE:HA	1.61	0.81
9:H:38:LEU:HA	9:H:124:ARG:O	1.79	0.81
5:B:1056:SER:HB3	5:B:1066:SER:HB2	1.61	0.81
5:B:121:ASN:HA	5:B:207:GLY:HA3	1.61	0.81
4:A:11:LEU:HD12	5:B:1193:GLN:HG2	1.62	0.80
5:B:956:THR:HG22	13:L:54:ARG:HG2	1.62	0.80
4:A:279:LEU:HD21	4:A:289:ILE:HG12	1.63	0.79
4:A:783:THR:O	5:B:516:ASN:ND2	2.13	0.79
11:J:7:CYS:HA	11:J:49:MET:HE3	1.65	0.79
5:B:710:LEU:HD21	5:B:738:PHE:HB2	1.64	0.79
5:B:114:PRO:HG3	5:B:181:LEU:HD11	1.65	0.79
6:C:94:LYS:HA	6:C:127:ARG:HH22	1.47	0.79
5:B:228:LYS:HG2	5:B:234:ILE:HG13	1.64	0.79
13:L:47:ARG:HB2	13:L:54:ARG:HG3	1.65	0.78
5:B:102:VAL:HG22	5:B:112:LEU:HB2	1.65	0.77
13:L:34:CYS:HB3	13:L:48:CYS:SG	2.24	0.77
13:L:38:LEU:HG	13:L:40:LEU:H	1.49	0.77
2:T:16:DT:O4	3:N:2:DC:N4	2.17	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:72:GLU:HA	5:B:87:LYS:HA	1.67	0.77
11:J:36:LEU:HD13	11:J:47:ARG:HG2	1.65	0.77
4:A:224:PHE:HB3	4:A:229:SER:HB2	1.66	0.76
5:B:123:THR:HG23	5:B:205:ILE:HA	1.67	0.76
7:E:16:PHE:HZ	7:E:58:MET:HB3	1.50	0.76
4:A:128:ILE:HB	4:A:134:ARG:HB2	1.66	0.76
6:C:39:ALA:HA	6:C:164:ALA:HB3	1.67	0.76
4:A:583:PRO:HD3	4:A:645:LEU:HD13	1.67	0.76
4:A:781:ASP:HB3	4:A:790:ASP:H	1.51	0.76
4:A:845:LEU:HA	4:A:848:ILE:HD12	1.66	0.76
4:A:668:ASP:OD2	4:A:742:ASN:N	2.18	0.75
7:E:4:GLU:O	7:E:7:ARG:NH2	2.20	0.75
4:A:70:CYS:SG	4:A:80:HIS:HE1	2.03	0.75
9:H:22:LYS:NZ	9:H:45:GLU:OE1	2.19	0.75
6:C:6:PRO:HB3	6:C:25:VAL:HG22	1.70	0.74
13:L:34:CYS:CB	13:L:48:CYS:SG	2.75	0.74
4:A:542:GLU:OE1	4:A:569:LYS:NZ	2.21	0.74
5:B:50:SER:HB3	5:B:408:LEU:HD23	1.70	0.74
7:E:16:PHE:CZ	7:E:58:MET:HB3	2.22	0.74
4:A:1224:LEU:HD21	4:A:1240:CYS:HB3	1.70	0.74
5:B:1033:LYS:HG2	5:B:1059:LEU:HD11	1.69	0.74
4:A:148:CYS:HB2	4:A:167:CYS:HB2	1.70	0.73
5:B:910:VAL:HG11	5:B:938:SER:HB3	1.69	0.73
4:A:1434:ALA:HB1	4:A:1436:ILE:HD13	1.69	0.73
4:A:607:ILE:HA	4:A:612:ILE:HA	1.70	0.73
7:E:179:GLN:HG3	7:E:182:ASP:HB2	1.71	0.73
4:A:242:PRO:O	4:A:247:ARG:NH1	2.22	0.73
4:A:774:ARG:HG2	4:A:797:LYS:HB3	1.70	0.73
4:A:946:VAL:HA	7:E:201:LYS:HD3	1.69	0.73
5:B:570:VAL:HG23	5:B:573:GLN:HB2	1.69	0.73
10:I:22:ASN:HB3	10:I:24:ARG:HB2	1.70	0.73
13:L:29:TYR:CE1	13:L:41:SER:HA	2.23	0.72
5:B:483:LEU:HD21	5:B:491:THR:HG23	1.70	0.72
5:B:428:ILE:HG12	5:B:448:ILE:HG22	1.71	0.72
12:K:47:ARG:HD2	12:K:60:ALA:HA	1.72	0.72
4:A:351:THR:HG23	5:B:1103:ILE:HG12	1.72	0.72
3:N:6:DG:H2"	3:N:7:DA:H5"	1.71	0.72
4:A:361:LEU:HB2	4:A:471:ASN:HD22	1.54	0.72
4:A:1303:GLU:OE1	4:A:1326:ARG:NH2	2.22	0.72
5:B:468:GLU:O	5:B:470:LYS:NZ	2.23	0.72
4:A:899:VAL:HG13	4:A:929:LEU:HD13	1.72	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:E:47:CYS:HB3	7:E:51:GLY:HA2	1.70	0.71
5:B:904:ARG:HD2	13:L:65:VAL:HG11	1.72	0.71
9:H:37:LYS:H	9:H:126:GLU:HB2	1.56	0.71
11:J:10:CYS:SG	11:J:43:ARG:NH1	2.64	0.71
10:I:84:VAL:HG23	10:I:104:LEU:HD21	1.72	0.71
4:A:67:CYS:HB3	4:A:70:CYS:HB2	1.72	0.70
5:B:942:ARG:HB2	5:B:945:GLU:HG3	1.73	0.70
4:A:880:LYS:HE2	4:A:955:PRO:HD3	1.72	0.70
5:B:38:PHE:HZ	5:B:541:LEU:HD13	1.57	0.70
7:E:83:CYS:O	7:E:113:GLN:NE2	2.25	0.70
11:J:17:LYS:HB3	11:J:39:LEU:HD22	1.73	0.70
4:A:901:LEU:HB2	4:A:926:GLN:HB2	1.73	0.70
5:B:35:SER:HB3	5:B:39:ARG:HH21	1.56	0.70
4:A:450:LEU:HD13	4:A:1074:GLU:HB2	1.73	0.70
4:A:452:LYS:HA	5:B:1137:CYS:HB3	1.74	0.70
4:A:483:ASP:HB2	5:B:987:LYS:HG3	1.72	0.70
5:B:950:ASP:OD1	5:B:969:ARG:NH1	2.25	0.70
6:C:52:GLU:HG2	6:C:53:THR:HG23	1.74	0.70
4:A:1421:CYS:HB3	4:A:1430:LEU:HD11	1.72	0.69
4:A:873:MET:O	4:A:1366:ARG:NH2	2.25	0.69
4:A:368:LYS:HG2	4:A:372:LYS:HE2	1.73	0.69
5:B:227:LYS:HA	5:B:236:HIS:HD2	1.57	0.69
4:A:308:ILE:HG13	4:A:312:PRO:HD2	1.74	0.69
10:I:74:GLU:HB3	10:I:81:ARG:HA	1.75	0.69
5:B:1076:HIS:O	6:C:31:ASN:ND2	2.26	0.69
5:B:357:GLN:HG2	5:B:368:GLU:HG3	1.75	0.69
5:B:996:ARG:HG3	5:B:1007:VAL:HG21	1.75	0.69
6:C:76:ASP:HB2	6:C:129:ILE:HG12	1.74	0.69
13:L:40:LEU:HG	13:L:41:SER:N	2.08	0.69
4:A:370:ILE:HG12	5:B:1105:ALA:HB2	1.74	0.68
6:C:31:ASN:OD1	6:C:34:ARG:NH1	2.26	0.68
2:T:8:DT:O2	3:N:12:DG:N2	2.27	0.68
6:C:50:GLU:HB3	13:L:66:GLN:HG2	1.74	0.68
4:A:1027:ALA:O	4:A:1031:VAL:N	2.23	0.68
4:A:286:HIS:HA	4:A:289:ILE:HD12	1.75	0.68
4:A:968:GLN:HA	4:A:973:ILE:HD12	1.76	0.68
4:A:1142:THR:HG23	4:A:1145:SER:H	1.59	0.68
5:B:361:LEU:HD21	5:B:377:PHE:HB3	1.76	0.68
4:A:446:ARG:HD3	4:A:448:PRO:HD2	1.75	0.67
4:A:711:ARG:HD2	10:I:95:THR:HB	1.75	0.67
5:B:780:VAL:HG22	5:B:795:ILE:HG23	1.76	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:407:ARG:HG3	4:A:413:ILE:HD11	1.75	0.67
5:B:1104:HIS:NE2	5:B:1126:GLY:O	2.27	0.67
4:A:898:ARG:NH1	4:A:899:VAL:O	2.26	0.67
9:H:115:TYR:CE1	9:H:124:ARG:HD3	2.30	0.67
4:A:363:GLN:HE21	4:A:459:ARG:HH21	1.42	0.67
5:B:1029:CYS:HG	5:B:1090:THR:HG1	1.42	0.67
4:A:915:SER:O	4:A:919:ILE:N	2.28	0.67
10:I:26:LEU:HD13	10:I:35:VAL:HG11	1.76	0.67
13:L:30:ILE:HG12	13:L:37:LYS:HG3	1.77	0.67
9:H:96:VAL:HA	9:H:142:LEU:O	1.95	0.67
7:E:66:GLU:HA	7:E:69:ILE:HG22	1.76	0.67
5:B:796:LEU:HB3	5:B:799:PRO:HG3	1.76	0.67
7:E:197:LYS:HD2	7:E:211:TYR:HE1	1.60	0.67
13:L:68:GLU:HG2	13:L:70:ARG:H	1.60	0.66
4:A:956:LEU:HD13	4:A:1021:LEU:HD22	1.77	0.66
4:A:208:LEU:HD13	4:A:235:ILE:HD11	1.77	0.66
5:B:237:VAL:HG22	5:B:257:LYS:HB3	1.76	0.66
5:B:724:ASP:HB2	5:B:727:LYS:HD3	1.76	0.66
9:H:93:TYR:HA	9:H:145:ARG:HD3	1.76	0.66
12:K:56:VAL:HG22	12:K:77:THR:HG22	1.77	0.66
4:A:877:HIS:HD2	4:A:1056:SER:HA	1.60	0.66
4:A:1152:ILE:HD12	4:A:1261:LYS:HG2	1.78	0.66
12:K:61:TYR:HB2	12:K:71:PHE:HE1	1.60	0.66
11:J:45:CYS:HB2	11:J:48:ARG:NH2	2.10	0.65
7:E:103:LYS:HB3	7:E:105:PHE:CD2	2.31	0.65
7:E:118:PRO:HA	7:E:121:MET:HG2	1.78	0.65
5:B:680:THR:HG23	5:B:683:SER:H	1.59	0.65
12:K:57:LEU:N	12:K:76:GLN:O	2.30	0.65
4:A:704:ALA:HB2	4:A:710:LEU:HD13	1.79	0.65
8:F:136:ARG:HB2	8:F:144:GLU:HG3	1.77	0.65
5:B:277:LYS:HG3	5:B:278:GLN:HG3	1.79	0.65
6:C:36:VAL:HA	6:C:40:GLU:HG2	1.79	0.65
10:I:82:GLU:HB3	10:I:104:LEU:HG	1.79	0.65
5:B:653:VAL:HA	5:B:689:LEU:HD13	1.79	0.65
4:A:701:LEU:HD21	10:I:114:GLN:HB2	1.78	0.65
6:C:178:PHE:HE1	6:C:180:TYR:HB3	1.62	0.65
4:A:269:ILE:HG13	4:A:299:HIS:HB3	1.79	0.64
5:B:1160:VAL:HG23	5:B:1194:ILE:HG13	1.79	0.64
5:B:1072:MET:HG3	5:B:1085:ILE:HB	1.79	0.64
2:T:17:DG:H4'	4:A:1403:GLU:HG2	1.80	0.64
3:N:11:DA:H2''	3:N:12:DG:C8	2.32	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:475:SER:OG	5:B:476:ARG:NH1	2.31	0.64
4:A:91:PHE:HB3	4:A:235:ILE:HG22	1.80	0.64
3:N:3:DA:H1'	3:N:4:DG:H5'	1.79	0.64
5:B:276:ILE:HD11	5:B:355:ILE:HD13	1.78	0.64
4:A:58:LEU:HB3	4:A:244:PRO:HG2	1.80	0.64
5:B:273:LEU:HB2	5:B:276:ILE:HB	1.78	0.64
6:C:11:ARG:HH12	6:C:229:TYR:HB3	1.63	0.64
7:E:127:ILE:HG22	7:E:130:ALA:H	1.62	0.64
4:A:207:ILE:HA	4:A:210:ILE:HD12	1.80	0.63
5:B:693:ILE:HG21	5:B:701:ILE:HD13	1.80	0.63
4:A:1342:GLU:OE1	7:E:200:ARG:NH1	2.31	0.63
13:L:28:LYS:HE3	13:L:41:SER:HB3	1.79	0.63
12:K:30:ALA:HA	12:K:75:ILE:O	1.98	0.63
4:A:563:PRO:HB2	4:A:566:ILE:HG12	1.80	0.63
5:B:604:ARG:NH1	5:B:613:VAL:O	2.31	0.63
7:E:99:HIS:O	7:E:103:LYS:HG2	1.99	0.63
9:H:116:TYR:O	9:H:123:MET:HB3	1.97	0.63
13:L:31:CYS:HB3	13:L:34:CYS:SG	2.38	0.63
4:A:765:VAL:HG22	4:A:800:VAL:HB	1.80	0.63
4:A:761:MET:O	4:A:803:SER:OG	2.16	0.63
4:A:822:GLU:HA	4:A:825:ILE:HD12	1.80	0.63
2:T:6:DT:H2''	2:T:7:DC:C5	2.33	0.62
6:C:36:VAL:HG13	6:C:40:GLU:HB2	1.81	0.62
6:C:64:ALA:HA	6:C:67:LEU:HD12	1.81	0.62
5:B:426:LYS:O	5:B:430:ARG:HG3	1.98	0.62
5:B:1171:VAL:HB	5:B:1182:CYS:HB2	1.80	0.62
6:C:36:VAL:HG21	6:C:251:LEU:HD13	1.82	0.62
4:A:23:SER:HB2	4:A:233:TRP:CE2	2.34	0.62
4:A:91:PHE:O	4:A:297:GLN:NE2	2.32	0.62
4:A:875:ALA:HB2	4:A:1366:ARG:HD3	1.81	0.62
12:K:61:TYR:HB2	12:K:71:PHE:CE1	2.34	0.62
5:B:1054:GLY:HA2	5:B:1057:LYS:HD2	1.80	0.62
5:B:613:VAL:HG22	5:B:628:THR:HA	1.80	0.62
5:B:883:LEU:HB2	5:B:932:HIS:HB3	1.81	0.62
4:A:357:PRO:HG3	4:A:472:LEU:HD11	1.80	0.62
5:B:261:ARG:HB2	5:B:264:SER:HB2	1.80	0.62
5:B:736:THR:HG23	5:B:737:THR:HG23	1.82	0.62
5:B:1029:CYS:HB3	5:B:1088:GLY:HA3	1.82	0.62
7:E:24:LYS:HD3	7:E:30:ILE:HG22	1.82	0.62
4:A:660:ASN:HA	5:B:1082:MET:HB3	1.80	0.62
4:A:667:GLY:HA3	5:B:1067:ARG:HD2	1.81	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:672:ASP:H	4:A:736:ASN:HD21	1.47	0.62
5:B:582:VAL:HG22	5:B:626:ILE:HB	1.80	0.62
5:B:1116:ARG:HG3	5:B:1198:TYR:CD2	2.35	0.62
13:L:29:TYR:CZ	13:L:41:SER:HA	2.35	0.62
5:B:562:GLY:O	5:B:590:HIS:ND1	2.33	0.62
6:C:88:CYS:HB3	6:C:92:CYS:HB3	1.82	0.61
6:C:108:GLU:HG2	6:C:149:LYS:HE3	1.81	0.61
9:H:94:ASP:OD2	9:H:146:ARG:HG3	2.00	0.61
4:A:407:ARG:HH22	4:A:411:ASP:HB3	1.65	0.61
4:A:1242:VAL:HG12	4:A:1243:VAL:HG12	1.82	0.61
6:C:52:GLU:HA	13:L:64:LEU:HD13	1.82	0.61
12:K:10:PHE:CD2	12:K:11:LEU:HD13	2.35	0.61
12:K:55:LYS:HB3	12:K:78:THR:HG22	1.81	0.61
5:B:697:GLU:O	5:B:701:ILE:HG23	2.00	0.61
5:B:431:TYR:HA	5:B:434:ARG:HE	1.65	0.61
5:B:880:THR:HB	5:B:931:TYR:HE1	1.65	0.61
5:B:1174:LYS:HB2	5:B:1177:HIS:HB2	1.82	0.61
4:A:526:ASP:HB3	4:A:657:LEU:HD23	1.82	0.61
7:E:173:SER:HA	7:E:177:ARG:HH21	1.66	0.61
9:H:106:GLU:HB3	9:H:112:ILE:HD13	1.82	0.61
10:I:73:ARG:O	10:I:83:ASN:ND2	2.34	0.61
11:J:37:SER:OG	11:J:42:LYS:NZ	2.33	0.61
4:A:14:VAL:HG11	5:B:1216:LEU:HB3	1.82	0.61
4:A:682:THR:OG1	4:A:728:LYS:NZ	2.34	0.61
4:A:767:GLN:HA	4:A:799:PHE:HA	1.81	0.61
9:H:138:GLU:OE1	9:H:138:GLU:N	2.28	0.61
10:I:26:LEU:HA	10:I:37:GLU:HA	1.82	0.61
11:J:58:GLU:HA	11:J:61:LEU:HD12	1.81	0.61
1:R:2:U:H2'	1:R:3:C:C6	2.36	0.61
4:A:335:ARG:O	4:A:340:LEU:N	2.30	0.60
4:A:900:ASP:H	4:A:906:HIS:HB3	1.66	0.60
12:K:51:LEU:HD22	12:K:59:ALA:HB3	1.81	0.60
4:A:176:LYS:HG3	4:A:181:LEU:HG	1.83	0.60
4:A:946:VAL:HG13	7:E:201:LYS:HG2	1.83	0.60
5:B:55:VAL:HA	5:B:59:LEU:HD12	1.83	0.60
5:B:800:GLN:HB3	11:J:52:THR:HB	1.82	0.60
5:B:298:LEU:HD11	5:B:318:VAL:HG21	1.84	0.60
7:E:43:LYS:O	7:E:47:CYS:N	2.30	0.60
7:E:48:ASP:OD1	7:E:52:ARG:N	2.23	0.60
4:A:1188:GLN:HE22	4:A:1241:ARG:HH11	1.50	0.60
5:B:751:VAL:HG23	5:B:812:LEU:HD22	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:265:LYS:O	4:A:269:ILE:HD12	2.01	0.60
9:H:101:ALA:HA	9:H:116:TYR:HA	1.82	0.60
12:K:47:ARG:HD3	12:K:61:TYR:HD2	1.65	0.60
2:T:26:DG:H3'	2:T:27:DA:H8	1.67	0.60
4:A:960:ILE:HG21	4:A:1025:ARG:HB3	1.82	0.60
4:A:1424:VAL:HG22	4:A:1436:ILE:HD11	1.82	0.60
5:B:36:ALA:HA	5:B:39:ARG:HD2	1.82	0.60
6:C:203:GLN:OE1	6:C:203:GLN:N	2.31	0.60
10:I:7:CYS:SG	10:I:32:CYS:HB2	2.41	0.60
4:A:143:LYS:HG3	4:A:144:THR:HG23	1.83	0.60
5:B:915:THR:HG21	5:B:934:LYS:HE3	1.83	0.60
5:B:1072:MET:HB2	5:B:1081:LEU:HD12	1.84	0.60
6:C:55:THR:OG1	6:C:152:GLU:N	2.34	0.60
6:C:177:GLU:O	6:C:230:MET:HA	2.01	0.60
7:E:64:PRO:HD3	7:E:77:SER:H	1.67	0.60
4:A:381:THR:HA	8:F:104:ASN:HD21	1.66	0.60
5:B:605:ARG:NH2	5:B:641:GLU:OE2	2.32	0.60
5:B:703:ILE:HG22	5:B:740:HIS:HB2	1.83	0.60
2:T:6:DT:H4'	2:T:7:DC:H5'	1.84	0.59
4:A:42:ASP:HB3	4:A:46:THR:HB	1.82	0.59
4:A:550:LEU:HD12	4:A:577:ILE:HD13	1.84	0.59
4:A:1009:ASN:HA	4:A:1012:ARG:HE	1.67	0.59
5:B:896:ASP:OD2	13:L:28:LYS:NZ	2.35	0.59
7:E:144:ILE:HD11	7:E:187:TYR:HB2	1.84	0.59
8:F:96:THR:HG22	8:F:100:GLN:HE21	1.66	0.59
4:A:994:GLN:HE22	4:A:1023:ARG:HE	1.48	0.59
12:K:30:ALA:HB2	12:K:76:GLN:HG2	1.83	0.59
4:A:560:ILE:H	9:H:78:SER:HB2	1.67	0.59
4:A:702:LEU:HD13	4:A:710:LEU:HD11	1.84	0.59
5:B:979:LYS:HD2	5:B:1095:LEU:HG	1.85	0.59
5:B:1084:GLN:OE1	6:C:189:THR:OG1	2.21	0.59
4:A:120:GLU:HA	4:A:123:ARG:HE	1.67	0.59
7:E:185:ALA:HA	7:E:190:LEU:HD12	1.83	0.59
5:B:38:PHE:CZ	5:B:541:LEU:HD13	2.37	0.59
5:B:354:ASP:O	5:B:358:LYS:HG2	2.01	0.59
7:E:205:SER:OG	7:E:207:ARG:O	2.18	0.59
4:A:851:HIS:ND1	8:F:139:PRO:HG3	2.17	0.59
9:H:12:VAL:HG21	9:H:26:ILE:HD12	1.84	0.59
4:A:57:ARG:O	4:A:68:GLN:N	2.35	0.59
6:C:142:VAL:HG23	11:J:15:GLY:HA3	1.85	0.59
3:N:4:DG:H2''	3:N:5:DC:C5	2.38	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:126:LEU:O	4:A:134:ARG:NE	2.36	0.59
4:A:1323:ASP:OD2	4:A:1325:THR:OG1	2.19	0.59
8:F:76:LYS:HD2	8:F:79:ARG:HD2	1.83	0.59
4:A:859:SER:HA	4:A:1422:ARG:HE	1.68	0.59
5:B:40:GLU:OE1	5:B:680:THR:OG1	2.20	0.59
7:E:88:VAL:HG12	7:E:92:THR:OG1	2.03	0.59
8:F:128:LYS:HD2	8:F:149:GLU:HA	1.85	0.59
4:A:1207:LEU:HG	4:A:1274:ARG:HH21	1.68	0.59
5:B:828:ALA:O	5:B:834:ASN:ND2	2.36	0.59
6:C:32:SER:HA	12:K:41:THR:OG1	2.03	0.59
4:A:1035:TYR:CE2	4:A:1037:LEU:HD22	2.37	0.58
5:B:1163:CYS:SG	5:B:1166:CYS:N	2.67	0.58
9:H:105:GLU:HG3	9:H:113:ALA:HB3	1.85	0.58
13:L:31:CYS:CB	13:L:34:CYS:SG	2.91	0.58
5:B:128:LEU:HB2	5:B:168:GLY:O	2.03	0.58
6:C:54:ASN:OD1	6:C:56:THR:HG22	2.04	0.58
11:J:32:GLU:O	11:J:36:LEU:HG	2.03	0.58
4:A:128:ILE:H	4:A:134:ARG:HH21	1.51	0.58
5:B:853:SER:O	5:B:972:LYS:HB2	2.04	0.58
5:B:860:MET:HB2	5:B:965:LYS:HG3	1.86	0.58
6:C:195:GLN:HB2	6:C:199:LYS:NZ	2.18	0.58
8:F:125:LEU:HD21	8:F:153:VAL:HG21	1.84	0.58
4:A:781:ASP:HB3	4:A:790:ASP:N	2.17	0.58
4:A:786:HIS:CE1	5:B:703:ILE:HG13	2.38	0.58
4:A:352:VAL:HB	5:B:1099:VAL:HG12	1.86	0.58
4:A:529:CYS:O	4:A:533:LYS:HG3	2.03	0.58
7:E:13:TRP:HB2	7:E:42:PHE:CE2	2.39	0.58
8:F:127:GLU:HB3	8:F:129:LYS:HG2	1.85	0.58
4:A:110:CYS:SG	4:A:168:GLY:N	2.68	0.58
5:B:44:VAL:HG11	5:B:495:LEU:HD13	1.86	0.58
5:B:601:ARG:O	5:B:605:ARG:HD3	2.04	0.58
5:B:639:ILE:HD11	5:B:691:GLU:HB2	1.84	0.58
4:A:839:ARG:O	4:A:843:LYS:HG2	2.04	0.58
5:B:728:ARG:HD2	5:B:730:ARG:HH21	1.66	0.58
4:A:24:PRO:HB3	4:A:238:CYS:H	1.66	0.58
4:A:326:ARG:HB2	4:A:1406:VAL:HG21	1.85	0.58
4:A:456:MET:HE3	4:A:507:VAL:HG22	1.86	0.58
4:A:662:PHE:O	5:B:828:ALA:HA	2.04	0.58
5:B:60:GLN:NE2	5:B:94:LYS:HB3	2.19	0.58
7:E:127:ILE:HB	7:E:132:ILE:HD11	1.86	0.58
5:B:758:PHE:HB2	5:B:1024:ALA:HB1	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:427:GLN:HG3	4:A:428:TYR:H	1.69	0.57
5:B:1114:LEU:HG	5:B:1202:LEU:HD11	1.87	0.57
4:A:1194:ARG:HA	4:A:1238:ILE:O	2.04	0.57
4:A:527:THR:HG21	4:A:650:GLN:HG2	1.85	0.57
4:A:1111:MET:HB3	4:A:1114:PRO:HG3	1.86	0.57
5:B:829:CYS:HA	5:B:834:ASN:HD21	1.69	0.57
9:H:43:ASN:HB3	9:H:46:LEU:HB2	1.85	0.57
4:A:396:PRO:HG3	4:A:416:ARG:HG2	1.85	0.57
4:A:705:LYS:HB2	4:A:708:MET:HE3	1.86	0.57
6:C:3:GLU:HB2	12:K:104:ASN:HD21	1.69	0.57
12:K:25:THR:HG22	12:K:26:LYS:HG3	1.87	0.57
4:A:590:ARG:HH12	4:A:592:ASP:CG	2.07	0.57
4:A:1120:LEU:HG	4:A:1124:HIS:HB3	1.86	0.57
5:B:681:TRP:CH2	5:B:690:VAL:HG11	2.39	0.57
2:T:15:DC:H1'	2:T:16:DT:C6	2.40	0.57
4:A:463:ILE:HD13	4:A:469:ARG:HG2	1.87	0.57
5:B:753:ALA:HA	5:B:756:ILE:HD12	1.86	0.57
9:H:35:GLN:HE21	9:H:111:LEU:HD11	1.69	0.57
9:H:30:SER:HB2	9:H:36:CYS:HB3	1.87	0.56
7:E:29:PHE:HB3	7:E:63:ASN:HB3	1.87	0.56
4:A:666:ILE:O	4:A:669:THR:OG1	2.18	0.56
4:A:711:ARG:CZ	10:I:97:MET:HG2	2.35	0.56
5:B:37:PHE:HB2	5:B:681:TRP:CE3	2.40	0.56
5:B:329:THR:HA	5:B:332:ASP:HB3	1.88	0.56
5:B:457:LEU:O	5:B:461:LEU:HD12	2.04	0.56
6:C:81:GLU:HG2	6:C:86:CYS:HB2	1.87	0.56
6:C:101:LEU:HB2	6:C:118:LEU:HD23	1.88	0.56
10:I:75:CYS:HB2	10:I:110:PHE:CD1	2.39	0.56
1:R:4:G:H2'	1:R:5:A:C8	2.39	0.56
4:A:755:PHE:HA	4:A:758:ILE:HD12	1.87	0.56
4:A:902:LEU:HG	4:A:926:GLN:HG2	1.88	0.56
5:B:579:ARG:NH2	5:B:621:GLU:O	2.39	0.56
4:A:877:HIS:CD2	4:A:1056:SER:HA	2.38	0.56
4:A:1239:ARG:HH12	4:A:1241:ARG:HE	1.53	0.56
5:B:459:TYR:CE1	5:B:468:GLU:HA	2.41	0.56
5:B:619:ILE:HG22	10:I:62:ILE:HG13	1.88	0.56
5:B:657:HIS:CD2	5:B:689:LEU:HD11	2.40	0.56
3:N:4:DG:H2''	3:N:5:DC:C6	2.40	0.56
4:A:998:LEU:O	4:A:1001:ARG:NH2	2.38	0.56
5:B:29:ASP:HB3	5:B:658:ILE:HG21	1.88	0.56
5:B:355:ILE:HG23	5:B:359:GLU:HB2	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:602:ASP:OD2	4:A:616:VAL:HG23	2.06	0.56
5:B:68:THR:HB	5:B:70:ILE:HD11	1.86	0.56
5:B:483:LEU:HD22	5:B:485:ARG:HD3	1.87	0.56
4:A:130:ASP:HB3	4:A:133:LYS:HD2	1.88	0.56
5:B:64:CYS:HA	5:B:67:SER:HB3	1.88	0.56
4:A:1051:ALA:O	4:A:1055:ARG:HG2	2.06	0.55
5:B:612:GLU:O	5:B:632:ARG:NH1	2.34	0.55
5:B:953:LEU:HD11	13:L:55:ILE:HB	1.87	0.55
5:B:956:THR:CG2	13:L:54:ARG:HG2	2.36	0.55
7:E:179:GLN:HA	7:E:215:MET:OXT	2.06	0.55
10:I:68:LEU:O	10:I:70:ARG:NH1	2.39	0.55
4:A:91:PHE:HE2	4:A:204:THR:HG1	1.54	0.55
4:A:967:ALA:HB2	4:A:1044:TRP:CZ3	2.41	0.55
5:B:1115:THR:HB	5:B:1117:GLN:HG3	1.87	0.55
7:E:72:PHE:CE1	7:E:157:SER:HA	2.42	0.55
7:E:120:ALA:HA	7:E:123:LEU:HD12	1.87	0.55
4:A:203:SER:HB2	4:A:206:GLU:HB2	1.88	0.55
4:A:587:HIS:HE1	4:A:969:GLN:HG2	1.70	0.55
10:I:100:PHE:HD1	10:I:111:THR:HG23	1.71	0.55
4:A:348:SER:HB2	5:B:1128:LEU:HB2	1.88	0.55
5:B:1099:VAL:O	5:B:1103:ILE:HG13	2.05	0.55
10:I:85:PHE:HB2	10:I:99:LEU:HD22	1.88	0.55
10:I:103:CYS:HB3	10:I:105:SER:O	2.07	0.55
13:L:29:TYR:OH	13:L:41:SER:HA	2.06	0.55
4:A:728:LYS:O	4:A:732:LEU:HG	2.07	0.55
5:B:541:LEU:HD12	5:B:542:MET:HG2	1.87	0.55
9:H:13:SER:N	9:H:27:GLU:O	2.40	0.55
6:C:10:ILE:HA	6:C:20:PHE:HA	1.88	0.55
4:A:28:ARG:HH22	4:A:237:THR:HG1	1.55	0.55
4:A:265:LYS:HE3	4:A:322:VAL:HG11	1.89	0.55
4:A:391:LEU:HD22	4:A:400:PRO:HB2	1.88	0.55
4:A:1239:ARG:HH22	4:A:1241:ARG:HH21	1.55	0.55
5:B:258:LEU:HD11	5:B:267:ARG:HB3	1.88	0.55
6:C:167:HIS:CD2	13:L:70:ARG:HB3	2.41	0.55
4:A:1116:LEU:HB2	4:A:1311:VAL:HG22	1.88	0.55
5:B:778:MET:HE2	5:B:1094:ARG:HB3	1.88	0.55
6:C:46:ILE:HA	6:C:159:ALA:HA	1.88	0.55
6:C:94:LYS:HA	6:C:127:ARG:NH2	2.19	0.55
7:E:178:ILE:HG23	7:E:214:CYS:HA	1.89	0.55
4:A:303:TYR:CE1	4:A:325:ILE:HD11	2.42	0.54
4:A:528:LEU:O	4:A:531:ILE:HG22	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:684:ALA:O	4:A:688:LYS:HG2	2.07	0.54
4:A:739:ASP:N	4:A:739:ASP:OD1	2.40	0.54
5:B:384:ARG:HA	5:B:387:LEU:HD12	1.89	0.54
4:A:1013:ASP:HB3	7:E:207:ARG:HB3	1.88	0.54
4:A:1212:VAL:O	4:A:1216:ILE:HG13	2.07	0.54
5:B:281:PRO:HD2	5:B:284:ILE:HD12	1.89	0.54
5:B:955:THR:HB	13:L:55:ILE:HA	1.88	0.54
5:B:830:TYR:H	5:B:834:ASN:HD21	1.56	0.54
5:B:1135:ARG:O	5:B:1139:ILE:HG13	2.07	0.54
3:N:2:DC:H2''	3:N:3:DA:H5''	1.90	0.54
4:A:803:SER:HB3	4:A:806:ARG:HG3	1.90	0.54
4:A:1161:THR:OG1	4:A:1167:GLU:HG2	2.08	0.54
10:I:75:CYS:HB3	10:I:78:CYS:SG	2.47	0.54
10:I:75:CYS:SG	10:I:77:LYS:N	2.78	0.54
4:A:450:LEU:HA	4:A:838:GLN:HE21	1.72	0.54
4:A:774:ARG:CZ	4:A:797:LYS:HG3	2.37	0.54
4:A:1154:TYR:HB2	4:A:1191:TRP:CE3	2.42	0.54
5:B:405:ARG:NH1	5:B:632:ARG:HB3	2.22	0.54
4:A:109:HIS:CG	4:A:169:ASN:HB3	2.43	0.54
4:A:523:ILE:HB	4:A:622:VAL:HG22	1.90	0.54
4:A:1189:SER:HB3	4:A:1242:VAL:HB	1.87	0.54
4:A:1329:THR:HB	4:A:1335:ILE:HG12	1.89	0.54
4:A:1426:GLU:O	4:A:1430:LEU:HG	2.07	0.54
9:H:118:PHE:CE2	9:H:142:LEU:HD12	2.42	0.54
12:K:90:ALA:O	12:K:94:ILE:HG13	2.07	0.54
4:A:120:GLU:HB2	4:A:123:ARG:HH21	1.72	0.54
4:A:262:LEU:O	4:A:266:LEU:HG	2.08	0.54
5:B:857:ARG:HG2	5:B:859:TYR:CZ	2.42	0.54
7:E:37:LEU:HD12	7:E:38:PRO:HD2	1.89	0.54
4:A:1341:ILE:HG13	4:A:1376:THR:HG23	1.90	0.54
4:A:438:ASP:HA	4:A:460:VAL:HG12	1.89	0.54
5:B:545:ILE:HG23	5:B:631:GLY:HA2	1.90	0.54
5:B:1181:GLU:N	5:B:1181:GLU:OE1	2.41	0.54
6:C:92:CYS:SG	6:C:94:LYS:HG3	2.47	0.54
4:A:183:GLY:O	4:A:199:LEU:N	2.41	0.54
4:A:367:PRO:HG2	4:A:370:ILE:HD12	1.90	0.54
4:A:741:ASN:OD1	4:A:744:LYS:HB2	2.07	0.54
4:A:1122:PRO:HD3	4:A:1323:ASP:HB2	1.88	0.54
4:A:1279:ILE:HG21	4:A:1282:VAL:HG13	1.90	0.54
4:A:1291:VAL:HG22	4:A:1292:PRO:HD2	1.89	0.54
5:B:854:LEU:HD12	5:B:854:LEU:H	1.72	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:6:PRO:HB2	12:K:101:LEU:HD12	1.89	0.54
8:F:101:ILE:HB	8:F:117:PRO:HB3	1.90	0.54
10:I:5:ARG:HB3	10:I:14:LEU:HD12	1.89	0.54
11:J:6:ARG:HG3	11:J:13:VAL:HA	1.88	0.54
11:J:21:TYR:HB2	11:J:39:LEU:HD11	1.90	0.54
12:K:20:LYS:NZ	12:K:22:ASP:HB2	2.23	0.54
12:K:58:PHE:O	12:K:75:ILE:HA	2.08	0.54
4:A:230:ARG:HG3	4:A:233:TRP:CD2	2.43	0.53
4:A:527:THR:O	4:A:653:VAL:HG11	2.08	0.53
5:B:120:ARG:HB3	5:B:122:LEU:HD13	1.90	0.53
11:J:28:ASP:HB2	11:J:30:LEU:HG	1.89	0.53
4:A:1166:ASP:O	4:A:1170:ILE:HG12	2.08	0.53
9:H:47:PHE:HB2	9:H:95:TYR:CD2	2.43	0.53
4:A:1191:TRP:HZ3	10:I:43:VAL:HG13	1.73	0.53
5:B:288:ALA:O	5:B:327:ARG:NH2	2.40	0.53
5:B:754:SER:HB2	5:B:812:LEU:HD11	1.91	0.53
5:B:835:GLN:O	5:B:838:SER:OG	2.26	0.53
5:B:864:LYS:H	5:B:872:GLU:HB2	1.72	0.53
7:E:79:TRP:HB2	7:E:105:PHE:HD2	1.72	0.53
4:A:172:PRO:HB3	4:A:185:TRP:CG	2.43	0.53
4:A:361:LEU:HA	4:A:471:ASN:HB2	1.88	0.53
5:B:878:GLN:HE22	5:B:880:THR:HG23	1.72	0.53
7:E:64:PRO:HB3	7:E:76:GLY:HA2	1.90	0.53
4:A:383:TYR:HD2	8:F:115:THR:HG1	1.55	0.53
4:A:575:LYS:O	4:A:579:SER:OG	2.18	0.53
5:B:899:ILE:HD11	5:B:905:VAL:HG11	1.89	0.53
5:B:1159:ARG:HD3	5:B:1161:HIS:CE1	2.43	0.53
6:C:195:GLN:HB2	6:C:199:LYS:HZ3	1.74	0.53
6:C:254:LYS:HE3	12:K:42:LEU:HD22	1.90	0.53
4:A:328:ARG:HD3	4:A:335:ARG:HH12	1.72	0.53
7:E:69:ILE:HA	7:E:72:PHE:O	2.07	0.53
4:A:30:ILE:HG23	5:B:1170:THR:HG23	1.89	0.53
4:A:472:LEU:HD13	5:B:835:GLN:OE1	2.09	0.53
4:A:218:ASP:O	4:A:222:LEU:HG	2.09	0.53
4:A:374:LEU:HA	5:B:1107:ALA:HB2	1.90	0.53
4:A:452:LYS:N	4:A:1070:GLN:OE1	2.41	0.53
4:A:942:PHE:O	4:A:946:VAL:HG23	2.09	0.53
4:A:1188:GLN:HE22	4:A:1241:ARG:NH1	2.06	0.53
5:B:37:PHE:O	5:B:41:LYS:HG2	2.08	0.53
5:B:175:ARG:HG2	5:B:200:GLY:HA3	1.90	0.53
5:B:796:LEU:HD23	5:B:799:PRO:HA	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:91:PHE:CD1	4:A:96:ILE:HD12	2.43	0.53
4:A:381:THR:H	4:A:384:ASN:HB3	1.74	0.53
4:A:666:ILE:HG22	5:B:1026:LEU:HB3	1.90	0.53
4:A:806:ARG:O	5:B:728:ARG:HG2	2.08	0.53
7:E:20:LYS:HD2	7:E:35:VAL:HA	1.90	0.53
4:A:23:SER:HB3	4:A:26:GLU:HB2	1.90	0.53
4:A:150:THR:HG22	4:A:167:CYS:H	1.74	0.53
4:A:606:LEU:O	4:A:613:ILE:N	2.42	0.53
5:B:915:THR:HB	5:B:934:LYS:HB3	1.90	0.53
7:E:79:TRP:HE1	7:E:96:PHE:HE1	1.56	0.53
4:A:442:VAL:HG21	4:A:489:LEU:HD11	1.91	0.52
5:B:566:LEU:HD11	5:B:586:TRP:CD2	2.44	0.52
10:I:17:ARG:HG2	10:I:28:GLU:OE2	2.08	0.52
2:T:14:DG:H2''	2:T:15:DC:H5'	1.91	0.52
4:A:140:THR:HA	4:A:143:LYS:HE2	1.91	0.52
4:A:524:VAL:O	4:A:527:THR:OG1	2.25	0.52
4:A:635:ARG:NH2	4:A:877:HIS:H	2.06	0.52
4:A:820:GLY:O	4:A:824:LEU:HG	2.08	0.52
5:B:390:LEU:HD13	5:B:392:ARG:NH2	2.23	0.52
4:A:219:PHE:HD2	4:A:226:GLU:HB2	1.75	0.52
4:A:372:LYS:HA	4:A:435:HIS:CD2	2.45	0.52
4:A:1346:ALA:O	4:A:1350:LYS:HG2	2.09	0.52
5:B:1180:PHE:HD2	5:B:1191:ILE:HG21	1.74	0.52
6:C:10:ILE:HG12	6:C:20:PHE:HB3	1.91	0.52
9:H:93:TYR:CD2	9:H:145:ARG:HB2	2.44	0.52
4:A:18:GLN:HE22	4:A:1416:ALA:HB1	1.75	0.52
4:A:715:GLU:OE2	4:A:774:ARG:NH2	2.39	0.52
6:C:163:ILE:HG22	6:C:166:GLU:HG3	1.91	0.52
9:H:37:LYS:O	9:H:125:LEU:HA	2.09	0.52
4:A:1400:CYS:HB2	4:A:1405:THR:HG23	1.91	0.52
5:B:745:PRO:HB2	5:B:1047:PHE:CD2	2.44	0.52
6:C:71:PRO:HB2	6:C:133:ILE:HD13	1.91	0.52
6:C:242:GLN:O	6:C:246:ARG:HG3	2.09	0.52
9:H:17:PRO:HA	9:H:24:CYS:SG	2.49	0.52
10:I:54:GLU:HB2	10:I:100:PHE:CE2	2.44	0.52
12:K:84:LYS:O	12:K:88:LYS:HG2	2.08	0.52
4:A:243:PRO:HB2	4:A:245:PRO:HD2	1.92	0.52
4:A:830:LYS:HZ1	4:A:1081:LEU:HB2	1.74	0.52
5:B:476:ARG:HB2	5:B:479:VAL:HG22	1.92	0.52
10:I:50:THR:HB	10:I:52:ILE:HG22	1.92	0.52
5:B:566:LEU:HD11	5:B:586:TRP:CG	2.45	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:899:ILE:O	13:L:58:LYS:HD2	2.10	0.52
5:B:1189:ILE:HD12	5:B:1190:ASP:N	2.25	0.52
8:F:136:ARG:HH21	8:F:151:LEU:HD22	1.74	0.52
4:A:667:GLY:O	4:A:670:ILE:HG22	2.10	0.52
7:E:93:MET:SD	7:E:112:TYR:OH	2.63	0.52
7:E:120:ALA:O	7:E:124:VAL:HG23	2.09	0.52
2:T:9:DC:C6	2:T:10:DT:H72	2.45	0.51
4:A:818:MET:HG2	5:B:514:LEU:HB3	1.91	0.51
4:A:1166:ASP:HB3	4:A:1239:ARG:HE	1.76	0.51
4:A:1207:LEU:HG	4:A:1274:ARG:NH2	2.25	0.51
4:A:1311:VAL:HG21	4:A:1329:THR:HG23	1.93	0.51
4:A:86:LEU:HD11	4:A:90:VAL:HG22	1.91	0.51
4:A:578:LEU:O	4:A:582:ILE:HG13	2.10	0.51
4:A:1066:VAL:HG12	4:A:1070:GLN:HE21	1.74	0.51
9:H:5:LEU:HD12	9:H:135:LEU:HD23	1.92	0.51
9:H:80:ARG:HH11	9:H:83:GLN:HE22	1.56	0.51
9:H:80:ARG:HH11	9:H:83:GLN:NE2	2.09	0.51
4:A:1213:GLY:HA2	4:A:1216:ILE:HD12	1.92	0.51
4:A:1268:LEU:HD13	10:I:48:LEU:HD11	1.93	0.51
4:A:1290:LYS:HA	4:A:1300:LYS:HA	1.92	0.51
4:A:1313:LEU:HB3	4:A:1338:VAL:HG21	1.92	0.51
5:B:287:ARG:NH1	5:B:321:GLY:O	2.44	0.51
6:C:162:GLY:HA3	6:C:170:TRP:CE2	2.45	0.51
6:C:258:ILE:HG23	12:K:19:LEU:HD11	1.92	0.51
10:I:44:TYR:CE2	10:I:46:HIS:HB2	2.44	0.51
4:A:442:VAL:O	4:A:457:ALA:HA	2.10	0.51
5:B:806:THR:HB	5:B:809:MET:HG3	1.92	0.51
10:I:19:ASP:HB3	10:I:22:ASN:HB2	1.93	0.51
4:A:92:HIS:HB3	4:A:95:PHE:CD2	2.46	0.51
4:A:236:LEU:HD21	5:B:1211:ASN:HB2	1.92	0.51
4:A:383:TYR:OH	8:F:101:ILE:HG22	2.10	0.51
5:B:170:LEU:HD12	5:B:171:PRO:HD2	1.91	0.51
5:B:210:LYS:HE2	5:B:482:VAL:HG22	1.92	0.51
5:B:1171:VAL:HA	5:B:1182:CYS:HA	1.93	0.51
8:F:140:ASP:OD1	8:F:141:GLY:N	2.44	0.51
13:L:68:GLU:O	13:L:70:ARG:HG3	2.11	0.51
4:A:1035:TYR:CD2	4:A:1037:LEU:HB2	2.45	0.51
5:B:193:LYS:HE2	5:B:787:VAL:HG11	1.93	0.51
5:B:426:LYS:HG3	5:B:430:ARG:HE	1.76	0.51
5:B:889:THR:OG1	5:B:909:ASP:OD1	2.23	0.51
5:B:948:ILE:HD13	6:C:61:GLU:OE2	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:E:13:TRP:NE1	7:E:37:LEU:O	2.44	0.51
10:I:10:CYS:HB3	10:I:32:CYS:SG	2.50	0.51
4:A:930:ASP:O	4:A:934:LYS:HG2	2.10	0.51
5:B:25:ILE:HG12	5:B:651:LEU:HD22	1.92	0.51
5:B:69:LEU:HD13	5:B:429:PHE:HD1	1.76	0.51
5:B:218:SER:OG	5:B:241:ARG:NH1	2.43	0.51
5:B:635:ARG:HH22	5:B:742:GLU:CD	2.14	0.51
4:A:69:THR:HB	5:B:1172:ILE:HD11	1.91	0.51
4:A:138:ILE:O	4:A:142:CYS:HB2	2.10	0.51
4:A:690:VAL:HG11	4:A:794:PRO:HD3	1.93	0.51
4:A:845:LEU:HD22	4:A:1370:LEU:HD22	1.93	0.51
4:A:1143:LEU:HD23	4:A:1267:MET:HG2	1.93	0.51
5:B:400:HIS:NE2	5:B:699:GLU:OE2	2.44	0.51
5:B:953:LEU:O	5:B:964:VAL:HA	2.11	0.51
5:B:1004:GLU:HB2	5:B:1006:ILE:HD12	1.93	0.51
5:B:1065:GLN:HG2	5:B:1067:ARG:H	1.75	0.51
7:E:112:TYR:CD2	7:E:116:ILE:HG12	2.46	0.51
5:B:1082:MET:HA	6:C:189:THR:HA	1.92	0.51
8:F:93:ILE:HD12	8:F:132:LEU:HD13	1.93	0.51
1:R:4:G:H2'	1:R:5:A:H8	1.76	0.51
4:A:164:ARG:HD2	4:A:165:GLY:N	2.25	0.51
4:A:1075:PRO:O	4:A:1079:MET:N	2.43	0.51
5:B:770:GLN:HA	5:B:773:MET:HE2	1.92	0.51
5:B:825:VAL:HG22	5:B:1010:LEU:HB3	1.93	0.51
7:E:61:GLN:HG3	7:E:62:ALA:N	2.26	0.51
9:H:39:THR:HB	9:H:124:ARG:HB3	1.93	0.51
4:A:519:PRO:O	4:A:624:SER:HB2	2.11	0.50
7:E:54:GLN:HB2	7:E:57:MET:CE	2.40	0.50
11:J:36:LEU:HA	11:J:39:LEU:HD12	1.92	0.50
4:A:666:ILE:HD11	5:B:1067:ARG:HA	1.93	0.50
7:E:62:ALA:HB3	7:E:78:LEU:HB3	1.93	0.50
4:A:7:SER:HB2	5:B:1159:ARG:NH1	2.26	0.50
1:R:3:C:H2'	1:R:4:G:C8	2.46	0.50
4:A:404:TYR:HD1	4:A:414:ASP:HA	1.75	0.50
4:A:418:SER:HB3	4:A:421:ALA:HB2	1.94	0.50
5:B:122:LEU:HD11	5:B:957:ASN:HB2	1.94	0.50
5:B:1054:GLY:O	5:B:1058:LEU:HG	2.10	0.50
6:C:176:ILE:HG22	6:C:230:MET:HE2	1.93	0.50
9:H:56:THR:HB	9:H:145:ARG:HB3	1.94	0.50
12:K:56:VAL:HA	12:K:77:THR:HA	1.91	0.50
4:A:687:LYS:NZ	4:A:795:GLU:OE1	2.43	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:I:100:PHE:CD1	10:I:111:THR:HG23	2.47	0.50
4:A:209:ASN:O	4:A:213:HIS:ND1	2.45	0.50
4:A:385:ILE:O	4:A:389:THR:HG23	2.12	0.50
4:A:464:PRO:HB2	12:K:4:PRO:HD3	1.94	0.50
4:A:1079:MET:SD	4:A:1359:ASP:HB2	2.52	0.50
5:B:345:LYS:HE3	5:B:348:ARG:HD3	1.93	0.50
5:B:620:ARG:HH12	10:I:68:LEU:HD21	1.77	0.50
5:B:1165:ILE:HB	5:B:1185:CYS:SG	2.51	0.50
4:A:344:ARG:HB2	5:B:1118:PRO:HB2	1.93	0.50
4:A:963:ILE:HD12	4:A:1049:ILE:HG12	1.93	0.50
5:B:69:LEU:HD13	5:B:429:PHE:CD1	2.46	0.50
5:B:1002:THR:HG23	5:B:1005:GLY:H	1.77	0.50
7:E:93:MET:HE1	7:E:132:ILE:HG21	1.94	0.50
9:H:105:GLU:O	9:H:113:ALA:N	2.38	0.50
12:K:55:LYS:HB3	12:K:78:THR:CG2	2.42	0.50
4:A:483:ASP:O	5:B:989:THR:HG23	2.11	0.50
4:A:924:LYS:O	4:A:927:VAL:HG22	2.11	0.50
5:B:282:ILE:HA	5:B:285:ILE:HD12	1.93	0.50
5:B:409:ALA:HA	5:B:412:LEU:HD12	1.94	0.50
5:B:425:THR:HA	5:B:428:ILE:HD12	1.93	0.50
5:B:428:ILE:O	5:B:432:MET:HG2	2.12	0.50
5:B:824:ILE:HG12	11:J:48:ARG:NH1	2.27	0.50
4:A:854:ASN:HB2	4:A:1000:LEU:HD11	1.93	0.50
4:A:913:LEU:HD22	4:A:915:SER:H	1.75	0.50
5:B:807:ARG:HG2	5:B:1045:SER:HB2	1.94	0.50
5:B:1170:THR:HB	5:B:1182:CYS:SG	2.52	0.50
9:H:6:PHE:HB2	9:H:133:ASN:HB3	1.94	0.50
4:A:404:TYR:HA	4:A:415:LEU:HD23	1.93	0.49
6:C:10:ILE:HD11	12:K:105:PHE:CE2	2.47	0.49
7:E:67:GLU:CD	7:E:67:GLU:H	2.15	0.49
9:H:93:TYR:CD2	9:H:143:LEU:HB3	2.47	0.49
4:A:523:ILE:HG23	4:A:527:THR:OG1	2.13	0.49
4:A:567:LYS:HG2	9:H:93:TYR:O	2.12	0.49
4:A:845:LEU:HD12	4:A:1069:ALA:HB2	1.94	0.49
5:B:380:TYR:O	5:B:384:ARG:HG2	2.12	0.49
5:B:635:ARG:HG3	5:B:637:LEU:HD11	1.93	0.49
5:B:661:LEU:HG	5:B:679:TYR:CD2	2.47	0.49
12:K:55:LYS:HB2	12:K:81:TYR:CD2	2.48	0.49
4:A:537:ARG:HG2	9:H:121:LEU:HD23	1.94	0.49
5:B:286:PHE:HA	5:B:289:LEU:HD12	1.93	0.49
5:B:637:LEU:HD13	5:B:693:ILE:HD13	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:F:119:ARG:HA	8:F:122:MET:HE2	1.95	0.49
13:L:39:SER:C	13:L:44:ASP:OD2	2.50	0.49
4:A:1239:ARG:HH12	4:A:1241:ARG:NE	2.10	0.49
5:B:294:ASP:HA	5:B:297:ILE:HD12	1.94	0.49
6:C:148:ARG:HB3	6:C:151:GLN:CD	2.33	0.49
10:I:78:CYS:HB3	10:I:105:SER:O	2.13	0.49
4:A:474:VAL:O	4:A:478:TYR:HD2	1.95	0.49
4:A:537:ARG:HH12	9:H:122:LEU:HD12	1.76	0.49
4:A:605:MET:HE1	4:A:617:VAL:HA	1.94	0.49
4:A:846:GLU:HA	4:A:1066:VAL:HG22	1.95	0.49
4:A:939:ASP:O	4:A:943:LEU:HG	2.13	0.49
4:A:1257:ASP:OD2	4:A:1261:LYS:NZ	2.36	0.49
8:F:135:ARG:NH1	8:F:145:ASP:OD1	2.46	0.49
9:H:19:ARG:HG2	9:H:19:ARG:HH11	1.77	0.49
4:A:1224:LEU:HD21	4:A:1240:CYS:CB	2.40	0.49
5:B:43:LEU:HG	5:B:496:ARG:HE	1.78	0.49
6:C:80:LEU:HG	6:C:94:LYS:O	2.12	0.49
10:I:75:CYS:HB2	10:I:110:PHE:CG	2.48	0.49
4:A:5:GLN:HG2	5:B:1175:LEU:HD22	1.95	0.49
4:A:88:LYS:HZ1	4:A:205:GLU:H	1.60	0.49
4:A:528:LEU:HG	4:A:749:ALA:HB1	1.94	0.49
4:A:744:LYS:O	4:A:748:MET:HG3	2.13	0.49
5:B:349:ILE:O	5:B:353:LYS:HG3	2.13	0.49
6:C:4:GLU:OE2	6:C:5:GLY:N	2.45	0.49
7:E:151:PRO:HD2	7:E:153:HIS:HE1	1.78	0.49
4:A:67:CYS:SG	4:A:77:CYS:HB2	2.52	0.49
4:A:99:ILE:HG23	4:A:211:PHE:CZ	2.48	0.49
4:A:328:ARG:HD2	5:B:1206:GLU:OE1	2.13	0.49
4:A:456:MET:HE2	4:A:478:TYR:CE2	2.48	0.49
4:A:898:ARG:HH22	4:A:929:LEU:HB3	1.76	0.49
5:B:312:GLU:HA	5:B:315:LYS:HD3	1.95	0.49
5:B:788:ARG:O	5:B:967:ARG:NH1	2.46	0.49
5:B:1016:ALA:O	5:B:1020:ARG:HG3	2.13	0.49
4:A:399:HIS:HD2	4:A:435:HIS:HB3	1.78	0.49
4:A:506:ALA:HB1	4:A:508:PRO:HD2	1.94	0.49
4:A:1045:VAL:O	4:A:1049:ILE:HG13	2.12	0.49
4:A:1060:PRO:HD2	8:F:86:THR:HG22	1.95	0.49
4:A:1446:ASP:HB2	8:F:131:PRO:HB2	1.94	0.49
5:B:954:VAL:HA	5:B:963:PHE:O	2.13	0.49
6:C:162:GLY:HA3	6:C:170:TRP:CD2	2.48	0.49
10:I:54:GLU:HG2	10:I:55:THR:HG23	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:K:42:LEU:HG	12:K:46:ILE:HD11	1.95	0.49
13:L:30:ILE:HA	13:L:37:LYS:HA	1.94	0.49
4:A:445:ASN:OD1	4:A:455:MET:HG2	2.13	0.48
4:A:586:ILE:HD13	4:A:633:VAL:HG22	1.95	0.48
4:A:1329:THR:H	4:A:1335:ILE:HD11	1.77	0.48
4:A:1438:THR:HA	4:A:1441:PHE:CZ	2.48	0.48
9:H:86:ASP:OD1	9:H:87:ARG:NH2	2.37	0.48
10:I:83:ASN:HA	10:I:104:LEU:HD23	1.95	0.48
4:A:230:ARG:HG3	4:A:233:TRP:CE2	2.48	0.48
4:A:353:ILE:HG22	4:A:468:PHE:HB2	1.95	0.48
4:A:368:LYS:O	4:A:372:LYS:HG3	2.13	0.48
4:A:1105:LEU:HB3	4:A:1384:VAL:HG21	1.94	0.48
5:B:453:ILE:O	5:B:457:LEU:HG	2.13	0.48
5:B:680:THR:HG23	5:B:683:SER:N	2.27	0.48
16:B:1302:ATP:H2'	16:B:1302:ATP:O1A	2.13	0.48
13:L:40:LEU:N	13:L:44:ASP:OD2	2.46	0.48
1:R:3:C:H2'	1:R:4:G:H8	1.77	0.48
4:A:67:CYS:CB	4:A:70:CYS:HB2	2.42	0.48
4:A:97:ALA:O	4:A:101:LYS:HG2	2.13	0.48
4:A:1001:ARG:HH11	8:F:83:PRO:HD2	1.78	0.48
4:A:135:PHE:CD1	4:A:222:LEU:HA	2.48	0.48
5:B:640:VAL:HG11	5:B:710:LEU:HD13	1.95	0.48
5:B:1162:ILE:O	5:B:1192:TYR:HB2	2.12	0.48
7:E:180:ARG:HH21	7:E:192:ARG:HD2	1.78	0.48
4:A:43:GLU:HG2	4:A:44:THR:HG23	1.94	0.48
4:A:1027:ALA:HB3	4:A:1030:ARG:HB2	1.95	0.48
5:B:544:CYS:HB2	5:B:634:TYR:CE2	2.48	0.48
5:B:953:LEU:HD21	13:L:55:ILE:HG22	1.95	0.48
6:C:175:ALA:HB2	11:J:43:ARG:NH1	2.29	0.48
7:E:54:GLN:O	7:E:58:MET:HG2	2.14	0.48
4:A:932:GLU:O	4:A:936:LEU:HG	2.14	0.48
6:C:52:GLU:HB3	6:C:154:LYS:HB2	1.96	0.48
10:I:6:PHE:O	10:I:8:ARG:NH2	2.46	0.48
4:A:14:VAL:HA	5:B:1218:THR:HA	1.95	0.48
4:A:388:LEU:O	4:A:392:VAL:HG23	2.14	0.48
4:A:761:MET:HA	4:A:804:TYR:HB2	1.94	0.48
4:A:1239:ARG:NH1	4:A:1241:ARG:HE	2.11	0.48
4:A:1390:ASN:HD21	4:A:1403:GLU:H	1.62	0.48
6:C:108:GLU:HA	6:C:149:LYS:HD2	1.96	0.48
6:C:167:HIS:HA	12:K:6:ARG:HH21	1.79	0.48
7:E:166:LYS:HE3	7:E:167:ARG:HD3	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:446:ARG:HD2	4:A:478:TYR:O	2.14	0.48
4:A:741:ASN:HA	6:C:192:TRP:HE1	1.78	0.48
4:A:951:GLU:O	4:A:954:TRP:NE1	2.47	0.48
4:A:961:ARG:HB3	4:A:1025:ARG:HH12	1.78	0.48
4:A:992:ASP:O	4:A:996:ASN:ND2	2.46	0.48
5:B:31:TRP:CH2	5:B:807:ARG:HB2	2.49	0.48
5:B:903:VAL:HG12	5:B:905:VAL:HG13	1.96	0.48
5:B:1174:LYS:HD3	5:B:1177:HIS:CD2	2.49	0.48
7:E:180:ARG:HE	7:E:192:ARG:HB3	1.79	0.48
2:T:17:DG:H2'	2:T:18:DA:C4	2.49	0.48
4:A:679:ILE:O	4:A:683:ILE:HG12	2.14	0.48
4:A:726:ARG:HG3	4:A:727:ASP:N	2.28	0.48
4:A:901:LEU:HD13	4:A:919:ILE:HG13	1.96	0.48
4:A:1209:MET:SD	4:A:1236:LEU:HB3	2.54	0.48
5:B:861:ASP:HB3	5:B:912:ILE:HG21	1.96	0.48
4:A:544:ASP:HB2	12:K:47:ARG:HH22	1.78	0.48
4:A:546:VAL:O	4:A:550:LEU:HD13	2.14	0.48
6:C:62:PHE:O	6:C:66:ARG:HG3	2.14	0.48
6:C:101:LEU:HB2	6:C:118:LEU:CD2	2.44	0.48
7:E:11:ARG:HD2	7:E:141:VAL:HG21	1.95	0.48
8:F:127:GLU:CB	8:F:129:LYS:HG2	2.44	0.48
2:T:12:DT:H2'	2:T:13:DC:C6	2.49	0.47
4:A:446:ARG:HG3	4:A:480:ALA:HB2	1.96	0.47
4:A:666:ILE:HG13	4:A:667:GLY:N	2.28	0.47
4:A:1100:ARG:HE	4:A:1104:ILE:HD11	1.79	0.47
4:A:1315:GLU:OE1	4:A:1315:GLU:N	2.47	0.47
5:B:276:ILE:HG23	5:B:335:GLY:HA2	1.95	0.47
5:B:382:ILE:O	5:B:386:LEU:HD23	2.14	0.47
5:B:986:GLN:HB3	5:B:1020:ARG:CD	2.44	0.47
6:C:91:HIS:HB3	6:C:96:SER:OG	2.14	0.47
4:A:340:LEU:HD21	5:B:1200:ALA:N	2.29	0.47
4:A:961:ARG:O	4:A:965:GLN:HG3	2.14	0.47
5:B:564:GLU:O	5:B:588:GLY:HA3	2.15	0.47
4:A:597:LEU:HB3	9:H:102:TYR:HE2	1.79	0.47
4:A:899:VAL:HG21	4:A:908:LEU:HG	1.96	0.47
5:B:46:GLN:OE1	5:B:47:GLN:N	2.47	0.47
5:B:186:GLU:OE1	5:B:187:SER:N	2.46	0.47
5:B:393:LYS:HA	5:B:393:LYS:HD3	1.67	0.47
11:J:36:LEU:HD11	11:J:51:LEU:HD11	1.95	0.47
3:N:7:DA:C6	3:N:8:DG:C6	3.02	0.47
4:A:216:VAL:O	4:A:220:THR:HG23	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:28:GLU:OE1	5:B:807:ARG:NH1	2.48	0.47
5:B:483:LEU:CD2	5:B:491:THR:HG23	2.41	0.47
5:B:1116:ARG:HG3	5:B:1198:TYR:CG	2.49	0.47
12:K:45:LEU:HD12	12:K:45:LEU:HA	1.45	0.47
4:A:108:MET:HG3	4:A:109:HIS:CD2	2.48	0.47
4:A:1340:GLY:HA2	7:E:183:PRO:HD2	1.96	0.47
5:B:405:ARG:HH11	5:B:632:ARG:HB3	1.80	0.47
7:E:52:ARG:HA	7:E:52:ARG:NE	2.30	0.47
10:I:56:ALA:HB3	10:I:89:GLN:HG3	1.96	0.47
4:A:22:PHE:CD2	5:B:1213:THR:HG22	2.49	0.47
4:A:353:ILE:HG21	4:A:487:MET:HB2	1.96	0.47
4:A:626:ASN:HD21	4:A:879:GLU:HA	1.78	0.47
4:A:929:LEU:HD21	4:A:983:ILE:HG23	1.96	0.47
4:A:1035:TYR:HE2	4:A:1037:LEU:HD22	1.79	0.47
5:B:314:LEU:O	5:B:318:VAL:HG23	2.13	0.47
5:B:351:TYR:CZ	5:B:355:ILE:HD11	2.50	0.47
4:A:353:ILE:HD13	4:A:487:MET:SD	2.55	0.47
4:A:535:THR:HG21	4:A:617:VAL:HG23	1.96	0.47
4:A:687:LYS:NZ	4:A:794:PRO:HG2	2.30	0.47
4:A:827:THR:O	4:A:831:THR:HG23	2.14	0.47
4:A:899:VAL:HG23	4:A:906:HIS:O	2.14	0.47
4:A:975:HIS:HA	4:A:1036:ARG:HG2	1.95	0.47
4:A:997:LEU:O	4:A:1011:GLN:NE2	2.46	0.47
4:A:1051:ALA:HA	4:A:1054:LEU:HD12	1.97	0.47
4:A:1336:MET:HG3	4:A:1341:ILE:HA	1.96	0.47
5:B:322:PHE:CE1	10:I:13:MET:HG2	2.50	0.47
5:B:349:ILE:HG22	5:B:353:LYS:HE3	1.95	0.47
5:B:851:PHE:CD1	5:B:1094:ARG:HB2	2.49	0.47
5:B:957:ASN:ND2	5:B:959:ASP:H	2.13	0.47
6:C:244:VAL:HG11	12:K:105:PHE:CZ	2.50	0.47
8:F:148:VAL:HA	8:F:151:LEU:HD12	1.96	0.47
10:I:58:VAL:HA	10:I:62:ILE:HD12	1.97	0.47
10:I:101:PHE:HE1	10:I:112:SER:HB3	1.78	0.47
11:J:43:ARG:HB3	11:J:45:CYS:SG	2.54	0.47
12:K:20:LYS:C	12:K:20:LYS:HD2	2.35	0.47
2:T:12:DT:O2	3:N:8:DG:N2	2.47	0.47
4:A:787:PHE:CE2	4:A:796:SER:HA	2.50	0.47
5:B:577:ALA:HB1	5:B:589:VAL:HB	1.96	0.47
5:B:1063:GLY:O	6:C:202:PRO:HG3	2.15	0.47
10:I:6:PHE:CD2	10:I:13:MET:HA	2.50	0.47
1:R:7:A:H2'	1:R:8:G:H8	1.80	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:172:PRO:HG3	4:A:185:TRP:CE2	2.50	0.47
4:A:445:ASN:C	4:A:487:MET:HE3	2.35	0.47
4:A:587:HIS:CE1	4:A:969:GLN:HG2	2.50	0.47
4:A:1198:ASP:OD2	4:A:1201:ALA:N	2.45	0.47
5:B:115:GLN:HG2	5:B:193:LYS:HB2	1.96	0.47
5:B:792:MET:HG2	5:B:857:ARG:HD3	1.95	0.47
6:C:82:TYR:CD1	6:C:161:LYS:HB3	2.50	0.47
3:N:8:DG:C6	3:N:9:DA:C6	3.03	0.47
4:A:202:LEU:HB3	4:A:207:ILE:HD11	1.96	0.47
4:A:267:ALA:O	4:A:271:LYS:HG3	2.14	0.47
5:B:51:PHE:O	5:B:55:VAL:HG23	2.15	0.47
5:B:243:ALA:HB2	5:B:251:ILE:HD13	1.96	0.47
5:B:806:THR:HG23	5:B:1045:SER:HA	1.95	0.47
5:B:862:GLN:O	5:B:914:LYS:HE2	2.14	0.47
6:C:144:ILE:HD12	6:C:144:ILE:H	1.80	0.47
3:N:6:DG:C6	3:N:7:DA:C6	3.03	0.46
4:A:125:ALA:O	4:A:134:ARG:HG3	2.14	0.46
4:A:537:ARG:H	4:A:537:ARG:HD3	1.80	0.46
4:A:687:LYS:HZ2	4:A:794:PRO:HG2	1.79	0.46
4:A:1169:ILE:HA	4:A:1172:LEU:HD12	1.97	0.46
4:A:1282:VAL:HA	4:A:1307:GLU:O	2.15	0.46
5:B:234:ILE:HD12	5:B:237:VAL:HG23	1.97	0.46
5:B:236:HIS:CE1	5:B:389:ALA:HA	2.49	0.46
4:A:961:ARG:HB3	4:A:1025:ARG:NH1	2.31	0.46
4:A:994:GLN:NE2	4:A:1023:ARG:HE	2.12	0.46
4:A:1099:PRO:O	4:A:1103:GLU:HG3	2.16	0.46
4:A:1221:LYS:NZ	4:A:1223:ASP:OD1	2.48	0.46
5:B:60:GLN:HA	5:B:60:GLN:OE1	2.16	0.46
6:C:254:LYS:HB3	12:K:42:LEU:HD22	1.98	0.46
4:A:526:ASP:HB2	5:B:835:GLN:NE2	2.31	0.46
5:B:54:PHE:HA	5:B:58:THR:HB	1.96	0.46
7:E:175:LEU:HD23	7:E:213:ILE:HB	1.98	0.46
2:T:13:DC:C2	2:T:14:DG:N7	2.83	0.46
2:T:14:DG:C6	3:N:4:DG:C6	3.03	0.46
4:A:1154:TYR:HA	4:A:1191:TRP:HA	1.98	0.46
5:B:1106:ARG:NH1	5:B:1118:PRO:HB3	2.30	0.46
13:L:38:LEU:HD12	13:L:39:SER:H	1.80	0.46
3:N:12:DG:H2"	3:N:13:DA:N7	2.30	0.46
4:A:128:ILE:HD12	4:A:134:ARG:HA	1.97	0.46
4:A:147:VAL:HG22	4:A:148:CYS:O	2.14	0.46
4:A:340:LEU:HD13	4:A:1429:ILE:HG23	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:883:LEU:HB3	5:B:935:ARG:HG2	1.98	0.46
6:C:15:LYS:NZ	6:C:236:GLY:HA3	2.31	0.46
10:I:71:SER:HB3	10:I:83:ASN:OD1	2.16	0.46
4:A:388:LEU:HD13	4:A:391:LEU:HD12	1.97	0.46
4:A:420:ARG:HG2	4:A:424:ILE:HG22	1.96	0.46
4:A:856:THR:OG1	4:A:868:TYR:HB2	2.16	0.46
4:A:947:PHE:HB2	4:A:950:GLY:HA2	1.98	0.46
4:A:1055:ARG:NH2	8:F:154:ASP:OD2	2.49	0.46
5:B:745:PRO:O	5:B:748:ILE:HG12	2.16	0.46
7:E:79:TRP:HB2	7:E:105:PHE:CD2	2.51	0.46
9:H:5:LEU:O	9:H:133:ASN:HB3	2.15	0.46
9:H:42:ILE:HD12	9:H:42:ILE:HA	1.82	0.46
12:K:55:LYS:O	12:K:78:THR:N	2.47	0.46
4:A:92:HIS:CE1	4:A:94:GLY:H	2.34	0.46
4:A:405:VAL:HG23	4:A:415:LEU:HD21	1.98	0.46
4:A:665:GLY:HA3	5:B:1069:PHE:CZ	2.51	0.46
4:A:864:ILE:HG22	4:A:865:GLN:HG2	1.98	0.46
4:A:1034:GLU:HB2	4:A:1035:TYR:CD1	2.50	0.46
5:B:118:ARG:NH2	5:B:194:GLU:OE1	2.49	0.46
5:B:728:ARG:NH1	5:B:1047:PHE:HA	2.31	0.46
5:B:872:GLU:HB3	5:B:914:LYS:HD2	1.98	0.46
1:R:4:G:C2	2:T:26:DG:C2	3.04	0.46
4:A:150:THR:O	4:A:164:ARG:HB3	2.15	0.46
5:B:287:ARG:NH2	5:B:294:ASP:OD2	2.49	0.46
5:B:298:LEU:HD23	5:B:311:LEU:HD22	1.97	0.46
5:B:324:ILE:HD12	5:B:329:THR:HB	1.98	0.46
5:B:557:PHE:CZ	5:B:603:LEU:HD11	2.51	0.46
6:C:11:ARG:N	6:C:19:ASP:O	2.48	0.46
7:E:41:ASP:OD1	7:E:41:ASP:N	2.49	0.46
2:T:22:DT:H2'	2:T:23:DC:C6	2.51	0.46
4:A:357:PRO:HG2	5:B:831:SER:O	2.16	0.46
4:A:369:SER:OG	12:K:2:ASN:ND2	2.49	0.46
4:A:512:VAL:HA	4:A:519:PRO:HA	1.98	0.46
4:A:844:ALA:HA	4:A:1389:PHE:CE1	2.51	0.46
7:E:96:PHE:CZ	7:E:100:ILE:HD11	2.51	0.46
8:F:74:ILE:HG21	8:F:144:GLU:HB3	1.98	0.46
5:B:101:MET:O	5:B:169:ARG:NH1	2.49	0.46
8:F:107:VAL:HG11	8:F:111:LEU:HD21	1.98	0.46
2:T:24:DT:OP1	5:B:1122:ARG:NH2	2.48	0.45
4:A:15:LYS:HG2	5:B:1218:THR:O	2.15	0.45
4:A:259:GLU:HB3	4:A:264:PHE:CE1	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:332:LYS:HA	4:A:337:ARG:HG2	1.98	0.45
4:A:374:LEU:HD13	4:A:491:VAL:HG21	1.98	0.45
4:A:814:PHE:CZ	5:B:514:LEU:HG	2.51	0.45
5:B:215:GLN:OE1	5:B:476:ARG:HD3	2.16	0.45
5:B:598:GLU:O	5:B:602:THR:HG23	2.16	0.45
5:B:640:VAL:HG12	5:B:649:LYS:HG2	1.97	0.45
5:B:879:ARG:HA	5:B:885:MET:SD	2.56	0.45
5:B:1025:HIS:CE1	5:B:1090:THR:HG21	2.50	0.45
6:C:77:ILE:N	6:C:129:ILE:HD11	2.31	0.45
4:A:381:THR:HA	8:F:104:ASN:ND2	2.30	0.45
4:A:443:LEU:O	4:A:489:LEU:HA	2.16	0.45
5:B:199:MET:SD	5:B:199:MET:N	2.88	0.45
5:B:360:PHE:CE2	5:B:374:LYS:HB3	2.52	0.45
5:B:650:GLU:HG3	5:B:651:LEU:HG	1.99	0.45
10:I:58:VAL:HG21	10:I:109:ILE:HD11	1.99	0.45
4:A:24:PRO:HG3	4:A:236:LEU:HA	1.97	0.45
4:A:81:PHE:CZ	5:B:1208:MET:HB2	2.51	0.45
4:A:96:ILE:HA	4:A:99:ILE:HB	1.98	0.45
4:A:404:TYR:CD1	4:A:414:ASP:HA	2.51	0.45
4:A:620:LYS:HE2	4:A:620:LYS:HB2	1.59	0.45
5:B:468:GLU:N	5:B:468:GLU:OE1	2.49	0.45
10:I:10:CYS:SG	10:I:12:ASN:ND2	2.83	0.45
4:A:387:ARG:O	4:A:391:LEU:HG	2.16	0.45
4:A:579:SER:OG	4:A:612:ILE:HG22	2.16	0.45
4:A:916:GLY:O	4:A:919:ILE:HG22	2.16	0.45
4:A:1008:GLN:O	4:A:1012:ARG:HG3	2.17	0.45
5:B:103:ASN:HA	5:B:109:THR:HA	1.99	0.45
5:B:1034:VAL:HG23	5:B:1059:LEU:HD13	1.99	0.45
6:C:147:LEU:HD22	6:C:151:GLN:HB3	1.99	0.45
7:E:168:TYR:HB3	7:E:170:LEU:HD23	1.97	0.45
9:H:47:PHE:HB2	9:H:95:TYR:CE2	2.51	0.45
13:L:38:LEU:HD23	13:L:40:LEU:O	2.16	0.45
4:A:80:HIS:CE1	5:B:1172:ILE:HG21	2.52	0.45
4:A:98:LYS:O	4:A:102:VAL:HG12	2.17	0.45
5:B:133:LYS:HE2	5:B:133:LYS:HA	1.99	0.45
5:B:446:LEU:HG	5:B:447:ALA:H	1.82	0.45
5:B:656:GLY:O	5:B:660:LYS:HG3	2.16	0.45
5:B:744:HIS:HB3	5:B:747:MET:HG2	1.99	0.45
5:B:801:LYS:N	11:J:52:THR:O	2.35	0.45
6:C:259:LEU:O	6:C:263:THR:HG23	2.16	0.45
4:A:185:TRP:HB2	4:A:199:LEU:HD12	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:685:GLU:O	4:A:689:LYS:HG2	2.16	0.45
4:A:1194:ARG:HG3	4:A:1237:ILE:HD11	1.98	0.45
5:B:579:ARG:HG2	5:B:586:TRP:CZ2	2.52	0.45
5:B:638:PHE:O	5:B:740:HIS:HB3	2.17	0.45
5:B:841:MET:HB3	5:B:846:ILE:HD11	1.98	0.45
6:C:17:ASN:HA	6:C:232:VAL:O	2.15	0.45
6:C:73:GLN:N	6:C:133:ILE:HD11	2.32	0.45
6:C:77:ILE:HD12	6:C:80:LEU:HB3	1.98	0.45
6:C:194:GLU:HG3	6:C:195:GLN:HG2	1.98	0.45
13:L:40:LEU:HD23	13:L:42:ARG:H	1.81	0.45
4:A:82:GLY:HA3	4:A:241:VAL:HB	1.99	0.45
4:A:108:MET:H	4:A:171:GLN:CD	2.17	0.45
4:A:1197:LEU:HD12	4:A:1209:MET:SD	2.57	0.45
5:B:499:ASN:HA	5:B:536:VAL:HG22	1.99	0.45
5:B:848:ARG:HB3	11:J:8:PHE:HD1	1.81	0.45
5:B:1060:ARG:HD3	5:B:1066:SER:HB3	1.99	0.45
7:E:93:MET:HE3	7:E:96:PHE:HD2	1.82	0.45
4:A:24:PRO:HB3	4:A:238:CYS:N	2.31	0.45
4:A:219:PHE:HE2	4:A:230:ARG:HH21	1.64	0.45
4:A:1162:VAL:HG21	10:I:41:PRO:HG2	1.99	0.45
5:B:541:LEU:HD12	5:B:542:MET:N	2.31	0.45
5:B:953:LEU:HA	13:L:56:LEU:O	2.17	0.45
5:B:1060:ARG:HD3	5:B:1066:SER:H	1.82	0.45
6:C:186:LEU:HB3	6:C:188:HIS:CD2	2.52	0.45
7:E:151:PRO:HB2	7:E:198:ILE:HG23	1.98	0.45
4:A:180:LYS:HD3	4:A:181:LEU:N	2.32	0.45
4:A:360:GLU:OE2	4:A:651:LYS:NZ	2.45	0.45
4:A:718:VAL:HA	4:A:721:PHE:CD2	2.51	0.45
4:A:800:VAL:HG13	4:A:812:GLU:CD	2.37	0.45
5:B:363:HIS:CE1	5:B:364:ILE:HG12	2.51	0.45
5:B:483:LEU:HD23	5:B:484:ASN:N	2.31	0.45
5:B:758:PHE:HB2	5:B:1024:ALA:CB	2.46	0.45
5:B:881:ASN:HB3	5:B:934:LYS:HE2	1.98	0.45
5:B:1159:ARG:HG3	5:B:1193:GLN:HE21	1.82	0.45
10:I:54:GLU:HG2	10:I:55:THR:N	2.32	0.45
10:I:86:PHE:HE1	10:I:102:VAL:HG23	1.82	0.45
4:A:487:MET:HE2	4:A:487:MET:HB3	1.60	0.45
4:A:497:THR:HG21	5:B:1149:GLU:OE2	2.17	0.45
4:A:956:LEU:HD23	4:A:956:LEU:HA	1.78	0.45
4:A:1129:GLU:HA	4:A:1132:LYS:HD2	1.98	0.45
4:A:1312:ASN:O	4:A:1316:VAL:HG23	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:259:LEU:HD21	12:K:91:CYS:HB2	1.99	0.45
9:H:114:VAL:HG21	9:H:134:ASN:CG	2.38	0.45
13:L:62:LYS:HE3	13:L:62:LYS:HA	1.99	0.45
4:A:243:PRO:HG2	4:A:246:VAL:HG23	1.99	0.44
5:B:104:GLU:HG2	5:B:110:HIS:CD2	2.53	0.44
5:B:426:LYS:NZ	5:B:430:ARG:HG2	2.31	0.44
5:B:816:GLU:OE1	5:B:816:GLU:N	2.49	0.44
6:C:46:ILE:HD12	6:C:72:LEU:HD11	1.98	0.44
6:C:60:ASP:HB2	13:L:67:PHE:HE2	1.82	0.44
7:E:147:HIS:CE1	7:E:149:LEU:HG	2.51	0.44
9:H:30:SER:CB	9:H:36:CYS:HB3	2.46	0.44
11:J:4:PRO:O	11:J:14:VAL:HG23	2.17	0.44
4:A:518:LYS:HB2	4:A:624:SER:O	2.17	0.44
4:A:569:LYS:HG3	4:A:570:PRO:HD2	1.98	0.44
5:B:860:MET:HA	5:B:964:VAL:O	2.18	0.44
7:E:168:TYR:CB	7:E:170:LEU:HD23	2.46	0.44
2:T:20:DC:H2''	2:T:21:DC:H6	1.82	0.44
4:A:450:LEU:HA	4:A:838:GLN:NE2	2.32	0.44
4:A:629:LEU:O	4:A:633:VAL:HG23	2.18	0.44
5:B:611:PRO:CG	5:B:685:LEU:HD21	2.47	0.44
5:B:760:ASP:OD1	5:B:760:ASP:N	2.51	0.44
4:A:102:VAL:O	4:A:106:VAL:HG12	2.17	0.44
4:A:880:LYS:HA	4:A:954:TRP:O	2.17	0.44
4:A:959:ASN:O	4:A:963:ILE:HG13	2.17	0.44
4:A:1018:PHE:CE1	4:A:1021:LEU:HD23	2.53	0.44
4:A:1216:ILE:HG22	4:A:1220:PHE:CE2	2.52	0.44
5:B:31:TRP:HA	5:B:34:ILE:HD12	1.99	0.44
6:C:91:HIS:ND1	6:C:158:VAL:HG11	2.33	0.44
6:C:163:ILE:HG21	12:K:10:PHE:CE1	2.53	0.44
7:E:64:PRO:HD3	7:E:77:SER:N	2.32	0.44
4:A:591:PHE:HD1	4:A:595:THR:HB	1.82	0.44
4:A:852:TYR:HB2	8:F:137:TYR:O	2.17	0.44
4:A:1020:CYS:HA	4:A:1023:ARG:HD2	2.00	0.44
4:A:1377:THR:O	7:E:212:ARG:NH2	2.51	0.44
5:B:217:ARG:HH12	5:B:405:ARG:HG2	1.81	0.44
5:B:259:TYR:OH	5:B:279:ASP:OD2	2.20	0.44
5:B:420:LEU:HD21	5:B:456:GLY:HA3	1.99	0.44
5:B:423:LYS:HD2	5:B:452:THR:HG21	1.99	0.44
5:B:554:ILE:O	5:B:558:LEU:HG	2.17	0.44
5:B:795:ILE:O	5:B:853:SER:HA	2.18	0.44
5:B:806:THR:HG23	5:B:1046:PRO:HD3	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:847:ASP:O	6:C:65:HIS:HE1	2.00	0.44
5:B:888:GLY:HA2	5:B:908:GLU:HB3	1.99	0.44
5:B:1060:ARG:HD3	5:B:1066:SER:N	2.33	0.44
6:C:57:VAL:HG11	11:J:60:PHE:HB3	1.98	0.44
7:E:159:ASP:OD1	7:E:159:ASP:N	2.50	0.44
11:J:30:LEU:HD23	11:J:30:LEU:HA	1.87	0.44
4:A:118:HIS:HD2	4:A:152:VAL:HG23	1.83	0.44
4:A:179:LEU:HD11	4:A:294:SER:HA	1.99	0.44
4:A:231:PRO:HA	4:A:234:MET:HG3	2.00	0.44
4:A:452:LYS:O	5:B:1141:HIS:NE2	2.49	0.44
4:A:478:TYR:CE1	4:A:487:MET:HE1	2.53	0.44
4:A:737:LEU:O	4:A:744:LYS:NZ	2.40	0.44
4:A:786:HIS:CG	5:B:703:ILE:HG13	2.53	0.44
4:A:1116:LEU:HB3	4:A:1308:THR:OG1	2.17	0.44
4:A:1220:PHE:CE2	4:A:1224:LEU:HD22	2.51	0.44
8:F:83:PRO:HB2	8:F:152:ILE:HD13	1.98	0.44
12:K:37:LYS:HA	12:K:37:LYS:HD3	1.79	0.44
4:A:119:ASN:OD1	4:A:120:GLU:N	2.50	0.44
4:A:356:ASP:CG	12:K:65:HIS:HE2	2.21	0.44
4:A:396:PRO:CG	4:A:416:ARG:HG2	2.47	0.44
4:A:598:LEU:O	9:H:122:LEU:HD13	2.18	0.44
4:A:994:GLN:HE22	4:A:1023:ARG:NE	2.14	0.44
4:A:1150:SER:OG	10:I:46:HIS:HB3	2.17	0.44
4:A:1342:GLU:O	4:A:1345:ARG:HG2	2.17	0.44
5:B:1204:PHE:O	5:B:1208:MET:HG3	2.18	0.44
10:I:6:PHE:H	10:I:8:ARG:NH2	2.15	0.44
12:K:39:ASP:OD1	12:K:41:THR:HG22	2.18	0.44
4:A:380:VAL:HG22	4:A:430:TRP:O	2.18	0.44
4:A:420:ARG:O	4:A:424:ILE:HG23	2.17	0.44
4:A:471:ASN:OD1	4:A:472:LEU:N	2.51	0.44
4:A:537:ARG:HH12	9:H:122:LEU:CD1	2.30	0.44
5:B:762:ASN:ND2	5:B:1024:ALA:HB3	2.33	0.44
6:C:54:ASN:OD1	6:C:153:LEU:HD13	2.18	0.44
7:E:98:ILE:HD13	7:E:101:GLN:HE22	1.83	0.44
9:H:91:ASP:HB2	9:H:93:TYR:HD1	1.82	0.44
12:K:20:LYS:HD2	12:K:21:ILE:N	2.33	0.44
2:T:17:DG:H2'	2:T:18:DA:N9	2.33	0.44
4:A:354:SER:O	4:A:469:ARG:HA	2.18	0.44
4:A:597:LEU:HD12	9:H:102:TYR:HD2	1.83	0.44
5:B:489:SER:HA	5:B:492:LEU:HD12	2.00	0.44
5:B:899:ILE:HD12	5:B:911:ILE:HA	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:E:177:ARG:HG2	7:E:215:MET:SD	2.58	0.44
9:H:6:PHE:CE2	9:H:8:ASP:HB2	2.52	0.44
4:A:71:GLN:HB3	5:B:1174:LYS:HG2	2.00	0.43
4:A:211:PHE:HB3	4:A:231:PRO:HB2	2.00	0.43
4:A:315:LEU:HA	4:A:321:PRO:HA	2.00	0.43
4:A:1154:TYR:HB2	4:A:1191:TRP:CD2	2.52	0.43
4:A:1161:THR:HB	4:A:1239:ARG:HH21	1.83	0.43
4:A:1207:LEU:HD13	4:A:1212:VAL:HG22	2.00	0.43
4:A:1282:VAL:HG12	4:A:1308:THR:HA	2.00	0.43
4:A:1349:TYR:CE2	4:A:1365:TYR:HD1	2.36	0.43
5:B:403:LYS:H	5:B:403:LYS:HG2	1.65	0.43
5:B:454:THR:O	5:B:458:LYS:HG3	2.18	0.43
5:B:803:LEU:HD13	5:B:1032:SER:HB3	1.99	0.43
8:F:76:LYS:HA	8:F:79:ARG:HD3	2.00	0.43
4:A:25:GLU:CD	4:A:25:GLU:H	2.21	0.43
4:A:694:THR:O	4:A:698:GLN:HG3	2.18	0.43
5:B:103:ASN:ND2	5:B:107:GLY:O	2.50	0.43
5:B:185:THR:O	5:B:189:LEU:N	2.46	0.43
6:C:97:VAL:HG21	6:C:129:ILE:HG22	1.99	0.43
9:H:95:TYR:HB3	9:H:144:ILE:HD13	2.00	0.43
10:I:71:SER:HB2	10:I:85:PHE:CD1	2.53	0.43
4:A:389:THR:HG22	4:A:426:LEU:HD23	1.99	0.43
4:A:698:GLN:OE1	10:I:99:LEU:HD12	2.19	0.43
4:A:786:HIS:ND1	5:B:703:ILE:HG13	2.32	0.43
4:A:947:PHE:HB3	4:A:949:ASP:OD1	2.19	0.43
4:A:1300:LYS:HE3	4:A:1300:LYS:HB3	1.62	0.43
5:B:541:LEU:HD11	5:B:747:MET:SD	2.58	0.43
5:B:579:ARG:HB3	5:B:581:PHE:HE1	1.83	0.43
5:B:611:PRO:HG2	5:B:685:LEU:HD21	2.01	0.43
5:B:764:SER:HA	5:B:767:ASN:HD22	1.83	0.43
5:B:839:MET:HB2	5:B:1010:LEU:HD21	2.00	0.43
7:E:95:THR:HG22	7:E:99:HIS:CE1	2.53	0.43
7:E:110:PHE:HD1	7:E:111:VAL:N	2.16	0.43
4:A:466:SER:HB2	5:B:1103:ILE:HD11	2.00	0.43
4:A:540:PHE:HB3	4:A:571:LEU:HD12	2.00	0.43
4:A:1119:TYR:HD1	4:A:1327:ILE:HA	1.82	0.43
5:B:982:SER:OG	5:B:986:GLN:HG2	2.17	0.43
5:B:1074:ASN:HB3	5:B:1077:THR:OG1	2.18	0.43
4:A:77:CYS:SG	4:A:79:GLY:N	2.91	0.43
4:A:706:HIS:NE2	4:A:1139:GLU:OE2	2.50	0.43
4:A:825:ILE:O	4:A:829:VAL:HG23	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:884:ASP:OD2	4:A:1030:ARG:NH2	2.51	0.43
4:A:1207:LEU:HD11	4:A:1273:LEU:HB2	2.00	0.43
4:A:1425:SER:O	4:A:1429:ILE:HG12	2.19	0.43
5:B:1016:ALA:HB1	5:B:1020:ARG:NH1	2.34	0.43
6:C:10:ILE:H	12:K:108:GLU:CD	2.22	0.43
6:C:251:LEU:O	6:C:255:VAL:HG23	2.19	0.43
7:E:147:HIS:HE1	7:E:149:LEU:HG	1.82	0.43
12:K:103:THR:O	12:K:107:THR:HG23	2.19	0.43
3:N:12:DG:H2''	3:N:13:DA:C8	2.54	0.43
4:A:98:LYS:HE2	4:A:98:LYS:HB2	1.92	0.43
4:A:845:LEU:O	4:A:1065:GLY:HA3	2.19	0.43
4:A:1381:LEU:HD23	4:A:1381:LEU:HA	1.84	0.43
5:B:120:ARG:NH2	13:L:54:ARG:HB2	2.34	0.43
5:B:311:LEU:O	5:B:315:LYS:HG3	2.18	0.43
5:B:599:THR:O	5:B:603:LEU:HG	2.18	0.43
6:C:6:PRO:CB	12:K:101:LEU:HD12	2.49	0.43
6:C:46:ILE:HG12	6:C:157:CYS:HB3	2.00	0.43
8:F:83:PRO:HA	8:F:146:TRP:CZ3	2.54	0.43
11:J:33:GLY:HA2	11:J:36:LEU:HD12	2.01	0.43
12:K:10:PHE:CE2	12:K:11:LEU:HD13	2.53	0.43
13:L:29:TYR:HE1	13:L:41:SER:HA	1.78	0.43
4:A:447:GLN:HE22	4:A:488:ASN:HD21	1.66	0.43
4:A:544:ASP:OD1	4:A:545:GLN:N	2.50	0.43
4:A:576:GLN:O	4:A:580:VAL:HG23	2.18	0.43
4:A:848:ILE:HD13	4:A:1370:LEU:HD21	2.00	0.43
4:A:1161:THR:H	4:A:1167:GLU:CD	2.22	0.43
4:A:1165:GLU:O	4:A:1169:ILE:HG12	2.19	0.43
5:B:298:LEU:HG	5:B:314:LEU:HD13	2.01	0.43
5:B:918:ILE:HG13	5:B:935:ARG:HD2	2.00	0.43
5:B:959:ASP:HB2	5:B:961:LEU:HD12	2.01	0.43
9:H:12:VAL:HA	9:H:28:ALA:HA	2.00	0.43
3:N:2:DC:H1'	3:N:3:DA:C8	2.54	0.43
4:A:175:ARG:NH1	4:A:176:LYS:O	2.52	0.43
4:A:209:ASN:HB3	4:A:213:HIS:HE1	1.83	0.43
6:C:15:LYS:NZ	6:C:135:GLN:HE21	2.16	0.43
10:I:68:LEU:HB3	10:I:84:VAL:HG13	2.01	0.43
10:I:85:PHE:HB3	10:I:101:PHE:CD2	2.54	0.43
2:T:8:DT:C2	3:N:12:DG:N2	2.87	0.43
4:A:181:LEU:O	4:A:202:LEU:HB2	2.18	0.43
4:A:303:TYR:CZ	4:A:325:ILE:HD11	2.54	0.43
4:A:449:SER:OG	5:B:1133:MET:HB3	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:862:ASN:OD1	7:E:174:GLN:HA	2.18	0.43
4:A:994:GLN:HE21	4:A:1022:LEU:HD23	1.84	0.43
5:B:783:THR:HA	11:J:60:PHE:HE1	1.84	0.43
6:C:44:LEU:HB2	6:C:77:ILE:HD13	2.01	0.43
11:J:2:ILE:HD12	11:J:2:ILE:HA	1.86	0.43
12:K:59:ALA:HA	12:K:74:ARG:O	2.19	0.43
2:T:8:DT:H2"	2:T:9:DC:C6	2.54	0.43
4:A:325:ILE:O	4:A:329:LEU:HG	2.19	0.43
4:A:344:ARG:HA	5:B:1129:ARG:HA	2.00	0.43
4:A:492:PRO:HB3	4:A:497:THR:HG22	2.01	0.43
5:B:228:LYS:HG3	5:B:232:SER:OG	2.19	0.43
5:B:431:TYR:HD1	5:B:434:ARG:HH21	1.65	0.43
5:B:619:ILE:HG21	10:I:61:ASP:HB2	2.01	0.43
5:B:832:GLY:HA2	5:B:835:GLN:HG3	2.00	0.43
5:B:840:ILE:HG23	5:B:992:ILE:HG23	2.00	0.43
6:C:47:ASP:OD1	13:L:70:ARG:NH1	2.51	0.43
9:H:35:GLN:HB3	9:H:111:LEU:HD11	2.00	0.43
9:H:82:PRO:HA	9:H:87:ARG:NH1	2.34	0.43
10:I:29:CYS:SG	10:I:32:CYS:N	2.84	0.43
10:I:29:CYS:HB3	10:I:32:CYS:O	2.19	0.43
11:J:22:LEU:O	11:J:25:LEU:HG	2.19	0.43
4:A:126:LEU:HA	4:A:138:ILE:HD11	2.00	0.42
4:A:399:HIS:CD2	4:A:435:HIS:HB3	2.54	0.42
4:A:582:ILE:HD13	4:A:607:ILE:HD13	2.00	0.42
4:A:1119:TYR:CE2	4:A:1287:TYR:HE2	2.37	0.42
4:A:1148:ILE:HD11	4:A:1198:ASP:HA	2.01	0.42
4:A:1207:LEU:H	4:A:1274:ARG:HH21	1.67	0.42
5:B:128:LEU:O	5:B:167:ILE:N	2.52	0.42
5:B:257:LYS:HE2	5:B:259:TYR:OH	2.18	0.42
5:B:679:TYR:OH	5:B:687:GLU:OE1	2.27	0.42
5:B:885:MET:HA	5:B:936:ASP:CB	2.49	0.42
4:A:65:LEU:HD21	4:A:66:LYS:HZ2	1.83	0.42
4:A:700:ASN:HB2	10:I:98:VAL:HG22	2.02	0.42
4:A:765:VAL:CG2	4:A:800:VAL:HB	2.49	0.42
4:A:786:HIS:CE1	5:B:705:MET:SD	3.12	0.42
5:B:25:ILE:HG21	5:B:653:VAL:HG13	2.01	0.42
5:B:210:LYS:NZ	5:B:462:ALA:HA	2.34	0.42
5:B:693:ILE:HG23	5:B:697:GLU:HG2	2.01	0.42
5:B:727:LYS:HG3	5:B:1049:ASP:OD1	2.20	0.42
5:B:756:ILE:HG21	5:B:767:ASN:OD1	2.18	0.42
5:B:759:PRO:HD2	5:B:1046:PRO:HG3	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:206:ASN:HA	6:C:209:TYR:CD2	2.54	0.42
6:C:252:GLN:HE21	12:K:98:LEU:HB3	1.84	0.42
7:E:54:GLN:HB2	7:E:57:MET:HE3	2.01	0.42
8:F:99:LEU:O	8:F:103:MET:HG2	2.20	0.42
2:T:8:DT:OP2	2:T:8:DT:H2'	2.19	0.42
4:A:31:SER:O	5:B:1183:LYS:NZ	2.33	0.42
4:A:272:ALA:O	4:A:276:LEU:HD23	2.18	0.42
4:A:596:THR:OG1	4:A:599:SER:N	2.45	0.42
4:A:1081:LEU:HD12	4:A:1081:LEU:HA	1.83	0.42
5:B:217:ARG:NH1	5:B:405:ARG:HG2	2.34	0.42
5:B:234:ILE:H	5:B:234:ILE:HG12	1.58	0.42
5:B:681:TRP:NE1	5:B:692:TYR:OH	2.52	0.42
9:H:130:ARG:HG2	9:H:134:ASN:HD22	1.85	0.42
10:I:5:ARG:HD2	10:I:5:ARG:HA	1.87	0.42
4:A:82:GLY:CA	4:A:241:VAL:HB	2.49	0.42
4:A:703:THR:O	4:A:705:LYS:NZ	2.52	0.42
4:A:739:ASP:HB3	9:H:19:ARG:HH12	1.84	0.42
4:A:949:ASP:HA	4:A:1290:LYS:HE2	2.01	0.42
4:A:1215:ARG:O	4:A:1219:THR:HG23	2.19	0.42
5:B:99:LYS:HA	5:B:99:LYS:HD2	1.91	0.42
5:B:399:ASP:OD2	5:B:510:LYS:HG3	2.19	0.42
5:B:582:VAL:HA	5:B:626:ILE:O	2.19	0.42
5:B:806:THR:HG22	5:B:808:ALA:H	1.84	0.42
9:H:100:THR:HA	9:H:138:GLU:O	2.20	0.42
9:H:104:PHE:CE2	9:H:134:ASN:HB3	2.54	0.42
4:A:13:THR:HG23	4:A:15:LYS:HE3	2.01	0.42
4:A:69:THR:O	5:B:1174:LYS:HE3	2.20	0.42
4:A:181:LEU:HD13	4:A:207:ILE:HD13	2.02	0.42
4:A:492:PRO:HA	5:B:1149:GLU:OE2	2.20	0.42
4:A:666:ILE:HD13	5:B:1030:LEU:HD22	2.01	0.42
4:A:777:PHE:CD1	4:A:783:THR:HG23	2.53	0.42
4:A:881:GLN:O	4:A:953:ASN:HA	2.19	0.42
4:A:1278:ASN:HB2	4:A:1312:ASN:HB2	2.02	0.42
5:B:308:TRP:HH2	10:I:47:GLU:HG3	1.84	0.42
5:B:427:ASP:HA	5:B:430:ARG:CD	2.50	0.42
5:B:466:TRP:HD1	5:B:476:ARG:NH1	2.17	0.42
5:B:841:MET:HE2	5:B:990:ILE:HG21	2.00	0.42
10:I:78:CYS:HB2	10:I:80:SER:HB3	2.00	0.42
4:A:386:ASP:O	4:A:389:THR:OG1	2.37	0.42
4:A:857:ARG:HD3	4:A:861:GLY:O	2.20	0.42
4:A:1035:TYR:CE2	4:A:1037:LEU:HB2	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:701:ILE:HG13	5:B:703:ILE:HG23	2.00	0.42
5:B:863:GLU:HB2	5:B:961:LEU:HB3	2.02	0.42
7:E:87:SER:HA	7:E:115:ASN:O	2.19	0.42
12:K:107:THR:O	12:K:111:LEU:HD13	2.18	0.42
4:A:20:GLY:O	5:B:1213:THR:N	2.39	0.42
4:A:346:ASP:HB3	4:A:347:PHE:CD2	2.55	0.42
4:A:1288:ASP:CG	4:A:1300:LYS:HD3	2.39	0.42
5:B:21:GLU:O	5:B:654:ARG:HB3	2.19	0.42
5:B:406:LEU:HD23	5:B:406:LEU:HA	1.76	0.42
5:B:890:TYR:HD1	5:B:893:LEU:HD12	1.83	0.42
6:C:118:LEU:HD23	6:C:118:LEU:HA	1.80	0.42
7:E:56:LYS:NZ	7:E:84:ASP:HB2	2.34	0.42
9:H:117:SER:HA	9:H:121:LEU:O	2.19	0.42
11:J:55:ASP:HB3	11:J:58:GLU:OE1	2.19	0.42
3:N:9:DA:C6	3:N:10:DG:C6	3.08	0.42
4:A:683:ILE:HG21	4:A:801:GLU:HB2	2.02	0.42
4:A:1281:ARG:NH2	4:A:1309:ASP:OD1	2.51	0.42
4:A:1323:ASP:OD2	4:A:1326:ARG:HB2	2.19	0.42
4:A:1439:GLY:HA2	8:F:92:ARG:NH2	2.34	0.42
5:B:600:LEU:O	5:B:609:ILE:HD12	2.20	0.42
7:E:83:CYS:HB2	7:E:110:PHE:CE1	2.55	0.42
12:K:58:PHE:HB3	12:K:76:GLN:HB2	2.01	0.42
4:A:403:LYS:HE2	4:A:403:LYS:HB2	1.72	0.42
5:B:384:ARG:HH22	5:B:621:GLU:CD	2.23	0.42
5:B:894:ASP:HB2	5:B:896:ASP:OD1	2.19	0.42
5:B:982:SER:HB3	5:B:1092:TYR:CZ	2.55	0.42
6:C:43:THR:HB	6:C:170:TRP:O	2.20	0.42
6:C:91:HIS:CE1	6:C:158:VAL:HG11	2.55	0.42
7:E:66:GLU:HA	7:E:69:ILE:CG2	2.46	0.42
4:A:344:ARG:O	5:B:1155:SER:OG	2.22	0.42
4:A:357:PRO:HG2	5:B:832:GLY:HA3	2.02	0.42
4:A:369:SER:H	12:K:2:ASN:HD21	1.68	0.42
4:A:802:ASN:OD1	5:B:729:ILE:N	2.43	0.42
4:A:1289:ARG:HD2	4:A:1290:LYS:O	2.19	0.42
6:C:249:ASP:HB3	6:C:253:LYS:NZ	2.35	0.42
11:J:34:THR:O	11:J:38:ARG:HG2	2.20	0.42
12:K:20:LYS:O	12:K:33:ILE:HA	2.19	0.42
4:A:153:PRO:HA	4:A:162:VAL:HB	2.02	0.41
4:A:782:ARG:NH2	5:B:701:ILE:O	2.48	0.41
5:B:197:PHE:HD2	5:B:817:LEU:HD12	1.84	0.41
5:B:813:LYS:HA	5:B:813:LYS:HD2	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:882:THR:OG1	5:B:885:MET:SD	2.72	0.41
5:B:976:ILE:HG12	5:B:992:ILE:HA	2.02	0.41
4:A:102:VAL:HG13	4:A:211:PHE:CZ	2.55	0.41
4:A:380:VAL:HA	4:A:384:ASN:HD22	1.86	0.41
4:A:563:PRO:HG3	4:A:572:TRP:CZ2	2.55	0.41
4:A:840:ARG:HG2	4:A:1402:PHE:CE1	2.55	0.41
4:A:863:VAL:HG23	7:E:170:LEU:HD11	2.03	0.41
4:A:1140:HIS:HA	4:A:1275:GLY:HA3	2.02	0.41
5:B:186:GLU:HA	5:B:189:LEU:HB2	2.02	0.41
5:B:894:ASP:OD1	5:B:894:ASP:N	2.53	0.41
5:B:983:ARG:NH2	5:B:1028:GLU:OE2	2.53	0.41
5:B:1010:LEU:HD23	5:B:1011:ILE:N	2.35	0.41
6:C:35:ARG:HH12	12:K:40:HIS:HB2	1.85	0.41
9:H:37:LYS:N	9:H:126:GLU:HB2	2.30	0.41
13:L:38:LEU:HD22	13:L:56:LEU:HD11	2.00	0.41
2:T:19:WVQ:O4'	4:A:832:ALA:HA	2.20	0.41
4:A:31:SER:HB3	4:A:83:HIS:CD2	2.55	0.41
4:A:55:ASP:O	4:A:58:LEU:HB2	2.21	0.41
4:A:396:PRO:HA	4:A:435:HIS:CE1	2.55	0.41
4:A:560:ILE:HG22	9:H:79:TRP:HB3	2.02	0.41
5:B:360:PHE:CE1	5:B:361:LEU:HD13	2.55	0.41
5:B:778:MET:HE2	5:B:778:MET:HB2	1.89	0.41
5:B:876:LYS:HD2	5:B:877:PRO:HD2	2.01	0.41
7:E:52:ARG:HA	7:E:52:ARG:CZ	2.50	0.41
10:I:26:LEU:HB2	10:I:35:VAL:HG12	2.02	0.41
2:T:5:DC:H1'	2:T:6:DT:H5'	2.02	0.41
4:A:643:ALA:O	4:A:646:PHE:HB2	2.20	0.41
4:A:840:ARG:HG2	4:A:1402:PHE:CZ	2.55	0.41
4:A:1220:PHE:CD2	4:A:1224:LEU:HB3	2.55	0.41
5:B:59:LEU:O	5:B:63:ILE:HG12	2.21	0.41
5:B:367:LEU:HD12	5:B:368:GLU:H	1.84	0.41
5:B:1106:ARG:HD2	5:B:1125:ASP:O	2.21	0.41
5:B:1180:PHE:CD2	5:B:1191:ILE:HG21	2.55	0.41
6:C:169:LYS:HE2	13:L:70:ARG:HG2	2.02	0.41
6:C:181:ASP:OD2	6:C:186:LEU:HB2	2.20	0.41
7:E:188:LEU:HB2	7:E:190:LEU:HG	2.02	0.41
4:A:210:ILE:O	4:A:214:ILE:HG13	2.21	0.41
4:A:335:ARG:HA	4:A:339:ASN:HB2	2.02	0.41
4:A:900:ASP:HB3	4:A:906:HIS:ND1	2.35	0.41
4:A:959:ASN:OD1	4:A:961:ARG:HG2	2.21	0.41
5:B:175:ARG:CG	5:B:200:GLY:HA3	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:1173:ALA:HB1	5:B:1180:PHE:CD1	2.56	0.41
6:C:72:LEU:O	6:C:237:SER:HB2	2.20	0.41
6:C:77:ILE:O	6:C:161:LYS:NZ	2.47	0.41
6:C:258:ILE:HD12	12:K:19:LEU:HD21	2.02	0.41
10:I:17:ARG:HD3	10:I:17:ARG:HA	1.80	0.41
12:K:20:LYS:HZ3	12:K:22:ASP:HB2	1.85	0.41
2:T:10:DT:C2	3:N:10:DG:N2	2.89	0.41
4:A:122:MET:HE2	4:A:122:MET:HB3	1.77	0.41
4:A:261:ASP:HA	4:A:264:PHE:CD2	2.55	0.41
4:A:265:LYS:CG	4:A:303:TYR:HB2	2.50	0.41
4:A:605:MET:HA	4:A:614:PHE:O	2.20	0.41
4:A:837:ILE:O	4:A:841:LEU:HG	2.20	0.41
4:A:1004:ASN:HB3	4:A:1007:ILE:HB	2.01	0.41
4:A:1159:ARG:O	4:A:1170:ILE:HG21	2.20	0.41
4:A:1221:LYS:O	4:A:1222:ASN:HB2	2.20	0.41
4:A:1329:THR:HG21	4:A:1334:ASP:HB2	2.02	0.41
4:A:1412:ALA:HA	4:A:1415:SER:HB2	2.03	0.41
5:B:581:PHE:O	5:B:625:LYS:HA	2.20	0.41
5:B:843:GLN:HB2	5:B:993:THR:HB	2.02	0.41
5:B:1147:LEU:HD23	5:B:1147:LEU:HA	1.81	0.41
6:C:91:HIS:HB3	6:C:96:SER:CB	2.50	0.41
8:F:128:LYS:HA	8:F:128:LYS:HD3	1.90	0.41
9:H:41:ASP:CG	9:H:122:LEU:H	2.24	0.41
9:H:108:SER:HB3	9:H:111:LEU:HB2	2.03	0.41
4:A:11:LEU:HA	5:B:1193:GLN:HB3	2.03	0.41
4:A:464:PRO:HG2	4:A:465:TYR:CD1	2.55	0.41
4:A:740:LEU:HD11	6:C:193:TYR:H	1.86	0.41
4:A:774:ARG:CG	4:A:797:LYS:HB3	2.47	0.41
4:A:789:LYS:HB2	10:I:67:THR:O	2.21	0.41
4:A:843:LYS:HZ1	4:A:1401:SER:HB2	1.85	0.41
4:A:1037:LEU:HD12	4:A:1037:LEU:HA	1.77	0.41
4:A:1157:ASP:HB3	4:A:1160:SER:OG	2.20	0.41
4:A:1192:LEU:C	4:A:1260:LEU:HD21	2.41	0.41
5:B:68:THR:HA	5:B:90:ILE:O	2.20	0.41
5:B:490:SER:HA	5:B:775:LYS:HD3	2.03	0.41
5:B:696:GLU:HA	5:B:699:GLU:HG3	2.03	0.41
7:E:72:PHE:CZ	7:E:157:SER:HA	2.56	0.41
10:I:17:ARG:O	10:I:25:LEU:HD12	2.21	0.41
10:I:22:ASN:CG	10:I:24:ARG:HE	2.24	0.41
3:N:6:DG:H2'	3:N:6:DG:OP2	2.21	0.41
4:A:30:ILE:HD12	5:B:1170:THR:HG21	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:648:ASN:O	4:A:652:VAL:HG23	2.20	0.41
4:A:986:ILE:HD12	4:A:1028:THR:HG23	2.01	0.41
4:A:1030:ARG:HG2	4:A:1034:GLU:HG3	2.02	0.41
5:B:70:ILE:HD12	5:B:89:GLU:HB2	2.02	0.41
5:B:246:LYS:HD3	5:B:246:LYS:HA	1.77	0.41
5:B:592:ASN:O	5:B:595:ARG:HG2	2.20	0.41
5:B:722:ASP:OD1	5:B:722:ASP:N	2.54	0.41
5:B:757:PRO:HD3	5:B:983:ARG:HD2	2.02	0.41
5:B:976:ILE:HG23	5:B:990:ILE:O	2.21	0.41
5:B:1130:PHE:CE1	5:B:1134:GLU:HB3	2.56	0.41
6:C:52:GLU:HA	13:L:64:LEU:CD1	2.50	0.41
6:C:143:LEU:HD21	6:C:146:LYS:HG3	2.02	0.41
6:C:181:ASP:CG	6:C:186:LEU:HB2	2.41	0.41
6:C:257:SER:HA	6:C:260:LEU:HG	2.03	0.41
7:E:13:TRP:CE3	7:E:39:LEU:HB2	2.56	0.41
9:H:39:THR:O	9:H:123:MET:HA	2.21	0.41
2:T:23:DC:H5''	5:B:1122:ARG:HG3	2.01	0.41
4:A:86:LEU:HD23	4:A:86:LEU:H	1.86	0.41
4:A:310:GLY:C	4:A:312:PRO:HD3	2.42	0.41
4:A:420:ARG:O	4:A:423:ASP:N	2.52	0.41
4:A:689:LYS:HA	4:A:689:LYS:HD3	1.89	0.41
4:A:693:VAL:HG21	4:A:721:PHE:CE2	2.56	0.41
4:A:777:PHE:HD1	4:A:783:THR:N	2.19	0.41
5:B:195:CYS:HB3	5:B:782:LEU:HD13	2.02	0.41
5:B:234:ILE:HD12	5:B:237:VAL:CG2	2.50	0.41
5:B:258:LEU:HG	5:B:267:ARG:NH2	2.36	0.41
5:B:566:LEU:HD21	5:B:586:TRP:CZ2	2.55	0.41
5:B:576:ASP:HA	5:B:622:LYS:HZ3	1.85	0.41
5:B:582:VAL:HB	5:B:587:HIS:NE2	2.35	0.41
5:B:597:MET:SD	5:B:624:LEU:HD11	2.61	0.41
5:B:804:GLY:HA2	5:B:1042:GLY:O	2.21	0.41
5:B:1065:GLN:OE1	5:B:1069:PHE:HB2	2.20	0.41
5:B:1106:ARG:NE	5:B:1109:GLY:HA3	2.36	0.41
5:B:1161:HIS:HA	5:B:1192:TYR:O	2.21	0.41
5:B:1163:CYS:SG	5:B:1165:ILE:N	2.94	0.41
6:C:35:ARG:HA	6:C:38:ILE:HD12	2.03	0.41
9:H:37:LYS:HA	9:H:37:LYS:HD3	1.66	0.41
10:I:14:LEU:HD13	10:I:27:PHE:HB3	2.03	0.41
11:J:42:LYS:HD3	11:J:42:LYS:HA	1.80	0.41
12:K:77:THR:HG21	12:K:83:PRO:HA	2.02	0.41
4:A:389:THR:HA	4:A:426:LEU:HD21	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:850:VAL:HG23	4:A:1064:VAL:HG13	2.02	0.41
6:C:86:CYS:SG	6:C:87:PHE:N	2.93	0.41
4:A:244:PRO:HA	4:A:247:ARG:HG2	2.02	0.40
4:A:335:ARG:HD3	5:B:1203:LEU:HB2	2.02	0.40
4:A:975:HIS:HA	4:A:1036:ARG:CG	2.52	0.40
4:A:1135:ARG:HD3	4:A:1282:VAL:HG23	2.02	0.40
4:A:1188:GLN:HA	4:A:1243:VAL:C	2.42	0.40
5:B:41:LYS:NZ	5:B:692:TYR:OH	2.51	0.40
5:B:95:ILE:HD12	5:B:130:VAL:HG13	2.04	0.40
5:B:780:VAL:O	5:B:817:LEU:HD22	2.20	0.40
5:B:860:MET:HG3	5:B:965:LYS:HE3	2.02	0.40
5:B:861:ASP:O	5:B:964:VAL:HG22	2.21	0.40
7:E:97:VAL:HG13	7:E:127:ILE:HG12	2.03	0.40
9:H:83:GLN:HB2	9:H:86:ASP:HB3	2.03	0.40
10:I:75:CYS:HB3	10:I:103:CYS:SG	2.61	0.40
4:A:91:PHE:CE1	4:A:96:ILE:HD12	2.56	0.40
4:A:981:LEU:HD23	4:A:985:ASP:HB2	2.02	0.40
4:A:1028:THR:O	4:A:1032:LEU:HG	2.21	0.40
4:A:1220:PHE:O	4:A:1221:LYS:HB3	2.22	0.40
5:B:190:TYR:CE2	5:B:196:PRO:HG2	2.55	0.40
5:B:324:ILE:HG23	5:B:329:THR:OG1	2.20	0.40
5:B:365:THR:HG21	5:B:370:PHE:CD2	2.56	0.40
5:B:1060:ARG:HD2	5:B:1060:ARG:HA	1.75	0.40
5:B:1102:LYS:HD2	5:B:1102:LYS:HA	1.89	0.40
7:E:12:LEU:HD22	7:E:137:GLU:OE2	2.20	0.40
7:E:79:TRP:NE1	7:E:81:GLU:HB2	2.36	0.40
2:T:16:DT:H1'	2:T:17:DG:N9	2.36	0.40
4:A:508:PRO:HB3	4:A:639:PRO:HB2	2.02	0.40
4:A:852:TYR:CE1	8:F:136:ARG:HD2	2.56	0.40
5:B:635:ARG:HG3	5:B:637:LEU:CD1	2.50	0.40
5:B:1150:ARG:HA	5:B:1150:ARG:HD2	1.84	0.40
6:C:104:PHE:HB2	6:C:152:GLU:HG3	2.03	0.40
6:C:113:VAL:O	6:C:143:LEU:HA	2.21	0.40
7:E:103:LYS:HB3	7:E:105:PHE:CG	2.56	0.40
8:F:76:LYS:HA	8:F:79:ARG:CD	2.51	0.40
9:H:142:LEU:HD22	9:H:144:ILE:CD1	2.51	0.40
4:A:199:LEU:HD23	4:A:199:LEU:HA	1.89	0.40
4:A:556:TRP:HZ3	12:K:74:ARG:NH2	2.19	0.40
4:A:662:PHE:HB3	5:B:829:CYS:SG	2.61	0.40
4:A:1035:TYR:HD2	4:A:1037:LEU:HB2	1.87	0.40
4:A:1191:TRP:HH2	10:I:25:LEU:HD13	1.85	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:69:LEU:HD12	5:B:90:ILE:HD13	2.02	0.40
5:B:839:MET:HG3	5:B:990:ILE:HA	2.04	0.40
5:B:1205:GLN:HA	5:B:1208:MET:HG3	2.03	0.40
7:E:58:MET:O	7:E:60:PHE:HD2	2.05	0.40
8:F:138:LEU:HD12	8:F:142:SER:O	2.22	0.40
9:H:93:TYR:CG	9:H:143:LEU:HB3	2.56	0.40
4:A:340:LEU:HA	4:A:340:LEU:HD23	1.83	0.40
4:A:677:ARG:O	4:A:681:GLU:HG3	2.20	0.40
4:A:1138:ILE:HD11	4:A:1316:VAL:HG22	2.03	0.40
5:B:693:ILE:HG23	5:B:697:GLU:HB3	2.04	0.40
5:B:826:ALA:HA	5:B:1086:PHE:O	2.22	0.40
6:C:164:ALA:HA	6:C:167:HIS:O	2.22	0.40
7:E:169:ARG:HB3	8:F:140:ASP:HB3	2.02	0.40
9:H:91:ASP:HB2	9:H:93:TYR:CD1	2.57	0.40
9:H:103:LYS:O	9:H:115:TYR:HB2	2.21	0.40
10:I:4:PHE:CE1	10:I:13:MET:HB2	2.57	0.40
11:J:14:VAL:HB	11:J:50:ILE:HD11	2.03	0.40
12:K:32:VAL:HG12	12:K:74:ARG:HG3	2.03	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:L:39:SER:O	13:L:39:SER:O[2_555]	1.95	0.25

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
4	A	1370/1733 (79%)	1337 (98%)	33 (2%)	0	100 100
5	B	1103/1224 (90%)	1085 (98%)	18 (2%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
6	C	265/318 (83%)	261 (98%)	4 (2%)	0	100	100
7	E	210/215 (98%)	207 (99%)	3 (1%)	0	100	100
8	F	84/155 (54%)	81 (96%)	3 (4%)	0	100	100
9	H	129/146 (88%)	128 (99%)	1 (1%)	0	100	100
10	I	116/122 (95%)	112 (97%)	4 (3%)	0	100	100
11	J	63/70 (90%)	63 (100%)	0	0	100	100
12	K	112/120 (93%)	110 (98%)	2 (2%)	0	100	100
13	L	41/70 (59%)	37 (90%)	4 (10%)	0	100	100
All	All	3493/4173 (84%)	3421 (98%)	72 (2%)	0	100	100

There are no Ramachandran outliers to report.

### 5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	A	1194/1520 (79%)	1155 (97%)	39 (3%)	38	64
5	B	955/1061 (90%)	904 (95%)	51 (5%)	22	54
6	C	235/274 (86%)	226 (96%)	9 (4%)	33	61
7	E	192/197 (98%)	182 (95%)	10 (5%)	23	55
8	F	73/137 (53%)	72 (99%)	1 (1%)	67	82
9	H	116/128 (91%)	109 (94%)	7 (6%)	19	51
10	I	110/116 (95%)	101 (92%)	9 (8%)	11	40
11	J	60/65 (92%)	55 (92%)	5 (8%)	11	40
12	K	99/102 (97%)	93 (94%)	6 (6%)	18	50
13	L	36/57 (63%)	31 (86%)	5 (14%)	3	21
All	All	3070/3657 (84%)	2928 (95%)	142 (5%)	27	57

All (142) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	A	11	LEU
4	A	67	CYS
4	A	91	PHE
4	A	107	CYS
4	A	122	MET
4	A	148	CYS
4	A	151	ASP
4	A	167	CYS
4	A	186	LYS
4	A	205	GLU
4	A	333	GLU
4	A	337	ARG
4	A	344	ARG
4	A	378	GLU
4	A	394	ASN
4	A	446	ARG
4	A	482	PHE
4	A	498	ARG
4	A	518	LYS
4	A	529	CYS
4	A	543	LEU
4	A	573	SER
4	A	601	LYS
4	A	668	ASP
4	A	708	MET
4	A	782	ARG
4	A	816	HIS
4	A	839	ARG
4	A	849	MET
4	A	862	ASN
4	A	1018	PHE
4	A	1059	HIS
4	A	1174	PHE
4	A	1189	SER
4	A	1231	ASP
4	A	1267	MET
4	A	1300	LYS
4	A	1326	ARG
4	A	1389	PHE
5	B	41	LYS
5	B	101	MET
5	B	124	TYR
5	B	125	SER

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
5	B	186	GLU
5	B	190	TYR
5	B	206	ASN
5	B	217	ARG
5	B	218	SER
5	B	308	TRP
5	B	322	PHE
5	B	376	PHE
5	B	397	ASP
5	B	398	ARG
5	B	429	PHE
5	B	494	HIS
5	B	496	ARG
5	B	519	TRP
5	B	573	GLN
5	B	635	ARG
5	B	654	ARG
5	B	666	TYR
5	B	722	ASP
5	B	766	ARG
5	B	781	PHE
5	B	801	LYS
5	B	841	MET
5	B	859	TYR
5	B	887	HIS
5	B	894	ASP
5	B	935	ARG
5	B	953	LEU
5	B	959	ASP
5	B	983	ARG
5	B	1009	ASP
5	B	1084	GLN
5	B	1086	PHE
5	B	1091	TYR
5	B	1092	TYR
5	B	1095	LEU
5	B	1112	GLN
5	B	1130	PHE
5	B	1150	ARG
5	B	1163	CYS
5	B	1177	HIS
5	B	1185	CYS

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
5	B	1186	ASP
5	B	1190	ASP
5	B	1201	LYS
5	B	1220	ARG
5	B	1221	SER
6	C	4	GLU
6	C	20	PHE
6	C	47	ASP
6	C	83	SER
6	C	86	CYS
6	C	219	PHE
6	C	221	TYR
6	C	237	SER
6	C	257	SER
7	E	41	ASP
7	E	42	PHE
7	E	104	ASN
7	E	110	PHE
7	E	153	HIS
7	E	159	ASP
7	E	177	ARG
7	E	201	LYS
7	E	207	ARG
7	E	210	SER
8	F	135	ARG
9	H	19	ARG
9	H	25	ARG
9	H	53	ASP
9	H	78	SER
9	H	95	TYR
9	H	117	SER
9	H	130	ARG
10	I	4	PHE
10	I	10	CYS
10	I	22	ASN
10	I	24	ARG
10	I	46	HIS
10	I	75	CYS
10	I	78	CYS
10	I	92	ARG
10	I	106	CYS
11	J	6	ARG

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Mol	Chain	Res	Type
11	J	7	CYS
11	J	17	LYS
11	J	28	ASP
11	J	43	ARG
12	K	1	MET
12	K	2	ASN
12	K	7	PHE
12	K	20	LYS
12	K	71	PHE
12	K	81	TYR
13	L	31	CYS
13	L	34	CYS
13	L	47	ARG
13	L	51	CYS
13	L	68	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

Mol	Chain	Res	Type
4	A	18	GLN
4	A	109	HIS
4	A	169	ASN
4	A	447	GLN
4	A	1432	GLN
5	B	236	HIS
5	B	657	HIS
5	B	1025	HIS
5	B	1176	ASN
5	B	1177	HIS
5	B	1193	GLN
6	C	135	GLN
9	H	134	ASN
12	K	2	ASN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	R	7/9 (77%)	3 (42%)	0

All (3) RNA backbone outliers are listed below:



Mol	Chain	Res	Type
1	R	2	U
1	R	5	A
1	R	8	G

There are no RNA pucker outliers to report.

## 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

1 non-standard protein/DNA/RNA residue is modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	WVQ	T	19	2	19,24,25	3.47	6 (31%)	20,33,36	1.60	5 (25%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	WVQ	T	19	2	-	4/6/40/41	0/2/2/2

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	T	19	WVQ	C5-N7	12.56	1.46	1.28
2	T	19	WVQ	C4-N9	4.65	1.45	1.35
2	T	19	WVQ	C2-N2	4.05	1.45	1.34
2	T	19	WVQ	O6-C6	-3.06	1.18	1.23
2	T	19	WVQ	C6-N1	-2.99	1.32	1.38
2	T	19	WVQ	C5-C4	-2.20	1.37	1.43

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	T	19	WVQ	N3-C2-N1	-4.34	119.39	126.43
2	T	19	WVQ	C2'-C1'-N9	-2.61	108.91	113.56
2	T	19	WVQ	N2-C2-N3	2.30	120.30	116.57
2	T	19	WVQ	N9-C4-N3	-2.08	116.60	119.70
2	T	19	WVQ	N2-C2-N1	2.07	120.31	117.06

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	T	19	WVQ	O4'-C4'-C5'-O5'
2	T	19	WVQ	C3'-C4'-C5'-O5'
2	T	19	WVQ	O4'-C1'-N9-C4
2	T	19	WVQ	C4'-C5'-O5'-P

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	T	19	WVQ	1	0

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 10 ligands modelled in this entry, 9 are monoatomic - leaving 1 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
16	ATP	B	1302	-	26,33,33	0.60	0	31,52,52	0.77	1 (3%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
16	ATP	B	1302	-	-	6/18/38/38	0/3/3/3

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
16	B	1302	ATP	C5-C6-N6	2.30	123.85	120.35

There are no chirality outliers.

All (6) torsion outliers are listed below:

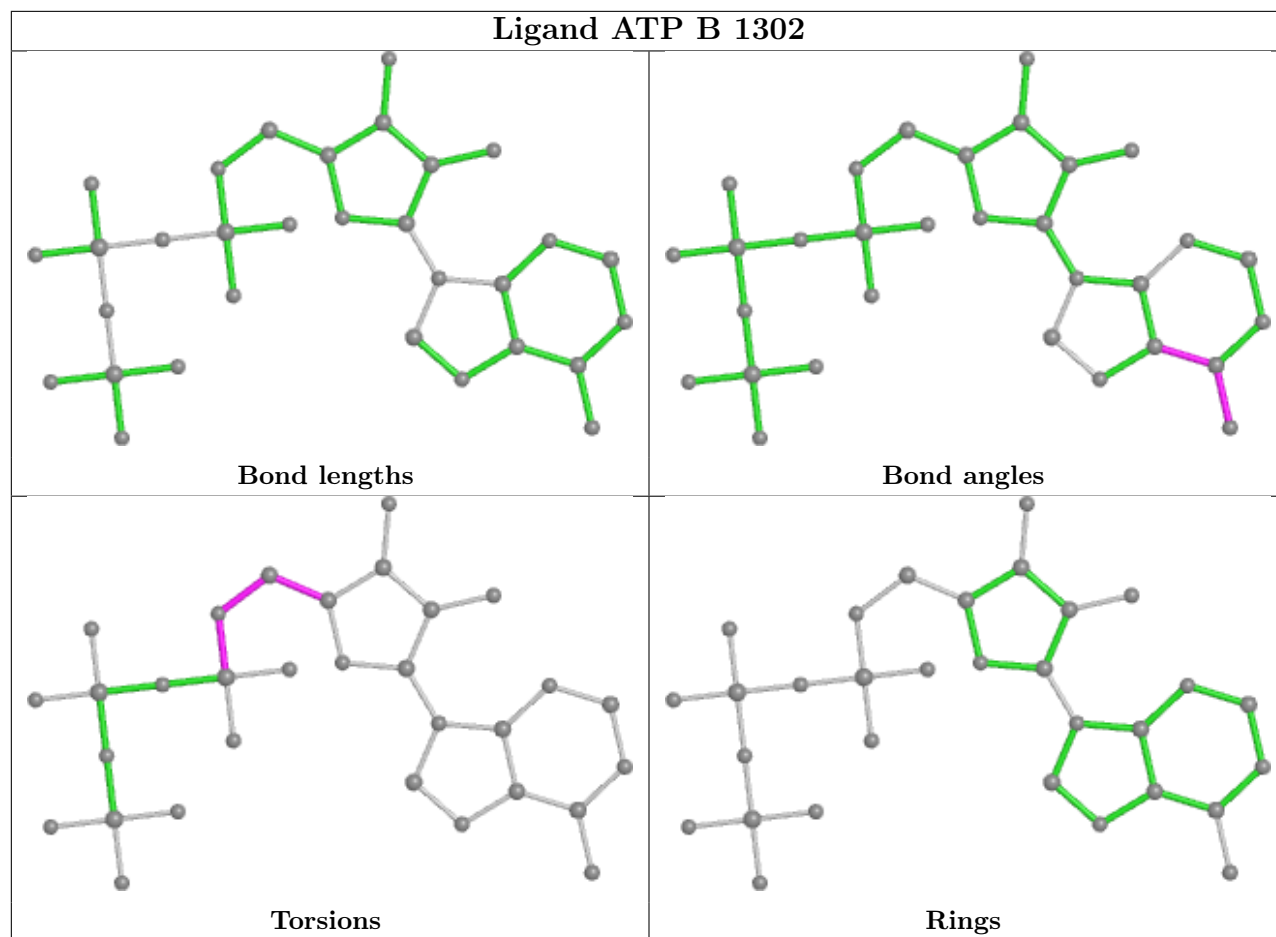
Mol	Chain	Res	Type	Atoms
16	B	1302	ATP	C5'-O5'-PA-O1A
16	B	1302	ATP	C5'-O5'-PA-O2A
16	B	1302	ATP	C4'-C5'-O5'-PA
16	B	1302	ATP	O4'-C4'-C5'-O5'
16	B	1302	ATP	C3'-C4'-C5'-O5'
16	B	1302	ATP	C5'-O5'-PA-O3A

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
16	B	1302	ATP	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Fit of model and data

### 6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2		OWAB(Å <sup>2</sup> )	Q<0.9
1	R	9/9 (100%)	-0.03	0	100 100	111, 134, 207, 245	0
2	T	23/29 (79%)	-0.23	0	100 100	113, 216, 300, 320	0
3	N	13/18 (72%)	-0.25	0	100 100	215, 252, 297, 312	0
4	A	1384/1733 (79%)	0.00	46 (3%)	46 41	81, 142, 221, 332	0
5	B	1123/1224 (91%)	-0.05	23 (2%)	65 61	61, 131, 197, 288	0
6	C	267/318 (83%)	-0.05	7 (2%)	56 50	58, 119, 186, 246	0
7	E	212/215 (98%)	-0.01	14 (6%)	18 15	126, 174, 259, 319	0
8	F	86/155 (55%)	-0.21	2 (2%)	60 56	90, 134, 191, 258	0
9	H	133/146 (91%)	0.42	9 (6%)	17 14	96, 162, 229, 346	0
10	I	118/122 (96%)	0.06	6 (5%)	28 26	114, 171, 225, 258	0
11	J	65/70 (92%)	-0.12	0	100 100	68, 118, 167, 225	0
12	K	114/120 (95%)	-0.19	1 (0%)	84 82	72, 122, 173, 199	0
13	L	43/70 (61%)	0.56	6 (13%)	2 3	112, 255, 330, 400	0
All	All	3590/4229 (84%)	-0.01	114 (3%)	47 41	58, 139, 227, 400	0

All (114) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
7	E	112	TYR	6.4
7	E	93	MET	6.1
4	A	1192	LEU	5.9
4	A	1197	LEU	4.9
5	B	869	SER	4.8
4	A	1149	ALA	4.6
7	E	110	PHE	4.4
4	A	257	ARG	4.2
4	A	258	GLY	4.2

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
4	A	1002	GLY	4.1
13	L	46	VAL	4.0
8	F	69	LEU	4.0
9	H	134	ASN	3.9
4	A	1195	LEU	3.8
4	A	1166	ASP	3.8
4	A	1328	TYR	3.8
5	B	658	ILE	3.7
4	A	144	THR	3.7
5	B	260	GLY	3.7
4	A	1150	SER	3.6
5	B	25	ILE	3.5
13	L	50	ASP	3.5
4	A	1433	MET	3.4
4	A	111	GLY	3.4
4	A	174	ILE	3.3
9	H	130	ARG	3.3
4	A	96	ILE	3.3
7	E	109	ILE	3.3
7	E	107	THR	3.3
4	A	183	GLY	3.2
7	E	62	ALA	3.2
5	B	24	PRO	3.1
13	L	47	ARG	3.1
5	B	1221	SER	3.1
9	H	88	SER	3.1
5	B	886	LYS	3.0
10	I	112	SER	3.0
5	B	261	ARG	3.0
10	I	111	THR	3.0
5	B	249	ARG	3.0
5	B	866	TYR	3.0
4	A	116	ASP	3.0
6	C	23	SER	2.9
4	A	200	ARG	2.8
4	A	226	GLU	2.8
6	C	159	ALA	2.8
7	E	123	LEU	2.8
4	A	1194	ARG	2.8
5	B	420	LEU	2.8
10	I	102	VAL	2.7
4	A	1390	ASN	2.7

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
9	H	107	VAL	2.7
4	A	125	ALA	2.7
4	A	1175	SER	2.7
6	C	131	HIS	2.7
7	E	87	SER	2.6
7	E	127	ILE	2.6
4	A	1193	LEU	2.6
4	A	1306	LEU	2.6
4	A	138	ILE	2.6
7	E	111	VAL	2.6
4	A	323	LYS	2.6
5	B	334	ILE	2.5
4	A	182	VAL	2.5
4	A	56	PRO	2.5
7	E	124	VAL	2.5
4	A	108	MET	2.5
4	A	141	LEU	2.5
5	B	262	GLU	2.4
7	E	113	GLN	2.4
4	A	1304	TRP	2.4
12	K	75	ILE	2.4
4	A	259	GLU	2.4
4	A	1165	GLU	2.3
13	L	36	SER	2.3
13	L	49	LYS	2.3
5	B	577	ALA	2.3
4	A	62	ASP	2.3
10	I	2	THR	2.3
9	H	4	THR	2.3
9	H	102	TYR	2.3
6	C	130	GLY	2.3
4	A	313	GLN	2.2
4	A	1284	MET	2.2
5	B	75	ALA	2.2
6	C	22	LEU	2.2
9	H	55	LEU	2.2
10	I	61	ASP	2.2
6	C	202	PRO	2.2
4	A	49	LYS	2.2
4	A	176	LYS	2.2
8	F	85	MET	2.2
4	A	322	VAL	2.2

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Mol	Chain	Res	Type	RSRZ
5	B	595	ARG	2.2
4	A	660	ASN	2.2
13	L	56	LEU	2.2
4	A	214	ILE	2.2
4	A	1080	THR	2.2
9	H	137	GLN	2.2
5	B	95	ILE	2.2
4	A	303	TYR	2.1
10	I	59	VAL	2.1
5	B	535	LEU	2.1
4	A	135	PHE	2.1
7	E	116	ILE	2.1
5	B	273	LEU	2.1
5	B	657	HIS	2.1
5	B	1127	GLY	2.1
5	B	130	VAL	2.0
6	C	195	GLN	2.0
9	H	60	ALA	2.0
5	B	868	MET	2.0
7	E	120	ALA	2.0
4	A	1199	ARG	2.0

## 6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
2	WVQ	T	19	23/24	0.81	0.29	171,184,201,215	0

## 6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 6.4 Ligands [i](#)

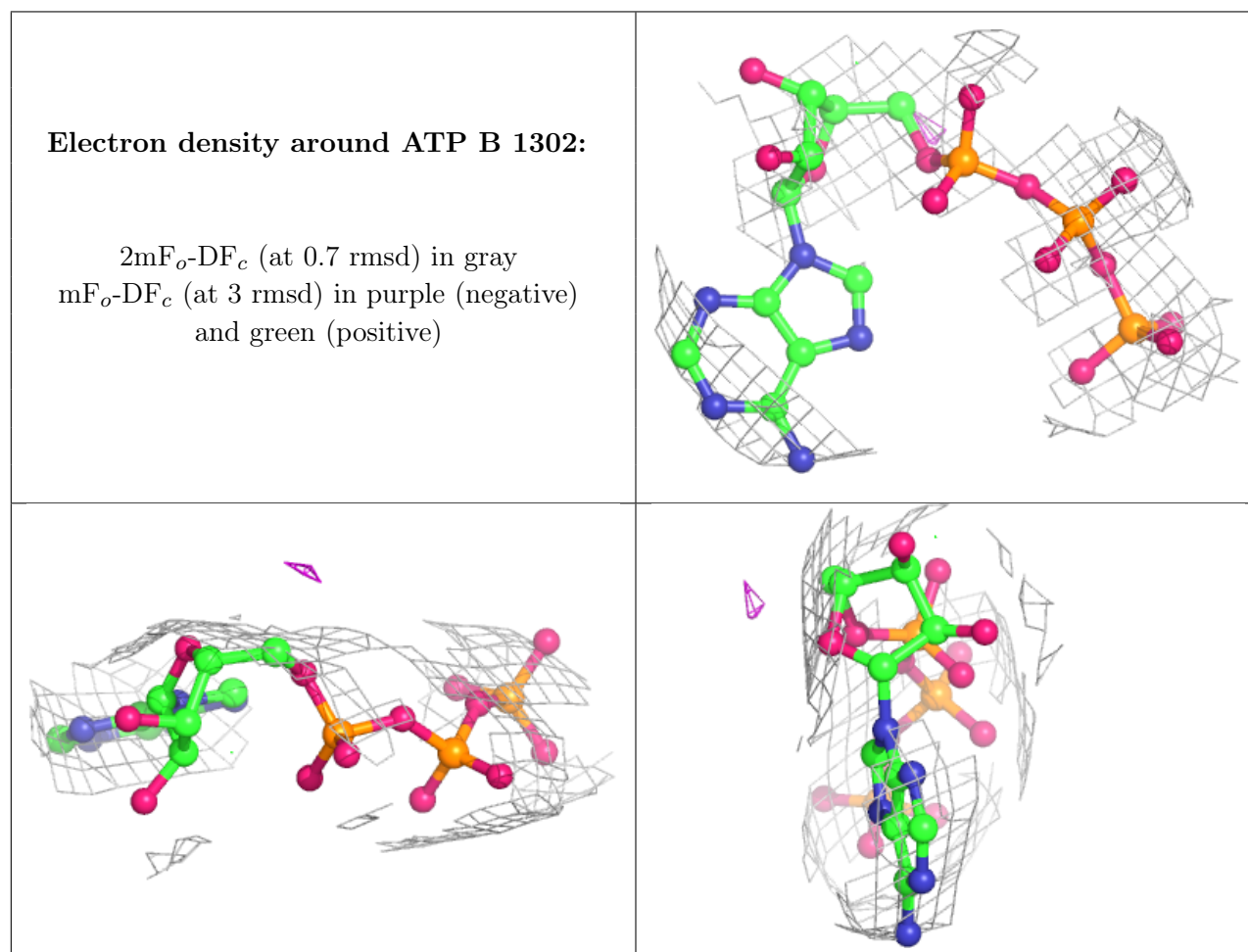
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum,



median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
14	ZN	A	1801	1/1	0.59	0.20	342,342,342,342	0
14	ZN	B	1301	1/1	0.66	0.08	216,216,216,216	0
16	ATP	B	1302	31/31	0.84	0.31	140,168,215,232	0
15	MG	A	1803	1/1	0.88	0.21	107,107,107,107	0
14	ZN	L	101	1/1	0.88	0.35	369,369,369,369	0
14	ZN	I	201	1/1	0.89	0.10	216,216,216,216	0
14	ZN	A	1802	1/1	0.91	0.07	208,208,208,208	0
14	ZN	I	202	1/1	0.93	0.10	287,287,287,287	0
14	ZN	C	401	1/1	0.93	0.13	158,158,158,158	0
14	ZN	J	101	1/1	0.95	0.22	115,115,115,115	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.



## 6.5 Other polymers [i](#)

There are no such residues in this entry.